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Sculptural Art

PLATE XLVII

A. Yakshi Hariti, front view (BNV-3)  B. Yakshi Hariti, hind view (BNV-3)

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B. Types of dharmachakras, upper drum slabs
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Excavations at Kanaganahalli (Sannati)
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A. Entourage of Mulakadēva; B. Entourage of Mulakaseṭhī and his son
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A. The dream; B. The prediction; C. The birth; D. Return to Kapilavastu; E. Presenting the child to Śākyavardhana; F. The great departure; G. Chūḍāharana H. Māra’s attack and I. Enlightenment and first sermon
LIFE STORY OF BUDDHA

A. The great departure; B. Return of Kanthaka; C. Chūdāharaṇa;
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FRIEZES ON CORNICS, SOUTHERN ĀYAKA

LIFE STORY OF BUDDHA

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LIFE STORY OF BUDDHA

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A. Southern ayaka; B. Western ayaka
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A. Subjugation of Nalagiri; B. Worship of Bödhi tree; C. Rāhula asks for patrimony
INTRODUCTION

The inscriptions of Sannati were first noticed and published by M. Sheshadri as far back as 1965. Many of the epigraphs of fragmentary nature dating from around 2nd century AD have been published by G.S. Gai. Subsequently M.S. Nagaraja Rao added a few more to this list. The most important amongst these make a reference to Vasisthiputra Satakarni, a Satavahana king. A rectangular granite stele bearing parts of Major Rock Edicts (XII and XIV) and Separate Rock Edicts (I and II) issued by the Mauryan emperor Aśoka was discovered in the Devi (Kalikambā) shrine of the Chandralāmbā temple complex. This discovery added new dimensions to the history of Karnataka, taking back the antiquity of Sannati region from Satavahana to the Mauryan period. It was now possible to infer that the area of Sannati was included in the Mauryan vijita almost around the same time when he conquered the Kalingas, perhaps after defeating the rulers of Sannati as well. Meanwhile the intensive explorations conducted by the Bangalore Circle of the Survey in the submergence area of Bhima valley encompassing 23 sqkm, yielded some more interesting inscriptions. In view of the significance of these Brāhma records from the region I.K. Sarma and J.V.P. Rao collated all the epigraphs known till then in their Early Brāhma Inscriptions from Sannati with valuable notes and copious references. In the recent past J.R. Howell has published nearly 17 fragmentary records retrieved from the excavations at the stūpa mound (SAN-1) at Anegutti and explorations in and around Sannati. Very recently the excavations conducted at the Vihāra complex at Benagutti has also yielded a few fragmentary records datable to 2nd-3rd century AD.

From the above reported records, besides the Mauryan emperor, King Śrī Śatakarni, Vasisthiputra Śrī Śatakarni and Vasisthiputra Śīva Śīrī Pulumāvi of the imperial Sātavāhana dynasty and Mahāsātavāhana Agniśarma - a provincial ruler of eminence are known.

All the above inscriptions palaeographically datable from 3rd century BC to 2nd-3rd century AD are in Brāhma characters of varying features and Prakrit language.
Amongst the above, apart from the Aśokan inscriptions, the inscription at Kataleholu sculpted as a stele of mourning of Siri Śātakarni and on another fragment from the same place are noteworthy for its classical language adopting probably the earliest and the finest Vasanta-tilaka metre in Sanskrit.

**Inscriptions from the excavated Maha Stūpa, Kanaganahalli**

The excavation of site at Kanaganahalli has brought to light a wealth of epigraphical records. As many as 270 inscriptions written in Brāhmi script and Prakrit language are discovered ranging from a five-lettered donatory label inscription to an 11-line epigraph. Sometimes the inscription is continued onto the neighbouring architectural unit if it is the donation of the same individual as in case of the inscription (Ins. No. A. 101) issued in the 16th (regnal) year of Chhimukha Sātavāhana by gahapati Matisēka (Mahisēka) Tōnda of Tokhisa family found on four mēdhī slabs. Sometimes two different records are sculpted on the same architectural unit as in case of lower drum slab (Ins. Nos. A. 51 & 52). These records have valuable bearing on the architectural, historical and cultural connotations of the Sātavāhana period.

These inscriptions with different groups with sub-groups, are categorised on the basis of distinct palaeographical features and stylistic and thematic traits of the architectural and sculptural units associated with them, besides the chronological framework set with the available dated inscriptions elsewhere and at the site as well. Sufficient care is taken to be as accurate as possible while dating, keeping the architectural/sculptural art and also on the basis of numismatic finds, dated in the early finds with a margin of 30 years between the epigraphically and numismatically known rulers of the Sātavāhana dynasty and also on the basis of some rulers getting depicted for the first time here and who as per the puranic list were hitherto not known either in numismatic discoveries or epigraphs.

**Location of Inscriptions**

The inscriptions of Kanaganahalli are found on various architectural members of the stūpa and accessory structures. They are as follows:

**Railing Inscriptions**

Most of the railing inscriptions are found inscribed on the inner face of tabha (uprights) and the ushṇīṣha (coping stone) where there are no sculptural depictions. Inscriptions are conspicuously absent over the sūchis (crossbar). From these inscriptions significant data on the constructional pattern could be gathered. The damaged ones in the process of expansion of the railing were utilised as props during relaying. This becomes evident from inscription no. A. 15 of Śrī Śātakarni
Vasishthiputra recording the grants for upright (pāyaka), crossbar (sūjika, sūchi), upper drum slab (mēdhī, āgatukapāṭa) and umbrella (chatari). The inscription is in two lines and is a fairly lengthy one. The tabha was placed horizontally and inscribed along the longer axis. Rest of the tabha inscriptions could be read in their vertical position, as they are short records written across the width. Some of these records are pre-Christian as well. In addition to the above, an interesting inscription (Ins.No.A.2) has recorded the financial aid in the form of 800 kārshāpaṇas and 250 dinaris made over towards the construction of the chaitya.

The inscriptions on uṣhnīsha are written horizontally and most of them are donations made by monks, nuns and their family members.

**Lower Drum Slabs**

The inscriptions on the lower drum slabs are inscribed over the plain horizontal upper band (paṭṭikā) and are neatly engraved. Sometimes the sculptured figures in the ornate vēdikā slabs are also inscribed identifying the respective depictions.

**Sculptured Cornices**

Many a narrative frieze placed over the āyaka platform carry inscriptions on the frontal slanting ridge acting as top border. While most of the donations were made by the monks and their disciples, one (Ins.No.A.68) reflects them to be the workmanship during the rule of king Vasishthiputra Śri Sātakarnī.

**Flower receptacles (Pushpagrāhīnis)**

*Pushpagrāhīnis* are the architectural units used to hold the vēdikā panels of the Mahāchaitya in situ. They are fashioned in the form of an ornate peripheral border over the vēdikā and also act as a receptacle to collect the flowers and other offerings made over to the chaitya. The inscriptions are found engraved upon the frontal ridge of the *pushpagrāhīnis* in which some of the short donations are mentioned. However, an inscription (Ins.No.A.65) is continued on to the second next unit of *pushpagrāhīnis*. While most of them record the donations of *pushpagrāhīnis* some of them (Ins.Nos.A.62 and b.217) reflect the donations of a paṭa, which could be vēdikā slab along with *pushpagrāhīni*. A donee has made a gift of as many as 10 number of flower receptacles as noticed in inscription no.B.210.

**Floor slabs**

The slabs paved in the pseudo-pradakshināpātha preceding the *pushpagrāhīnis* over the vēdikā also carry inscriptions recording the donations made to the chaitya. Of these, inscription no.A.75 is of importance as it records the meritorious gift of the final course (āgatukapāṭa) of the stūpa by a nun Dharmaśri during the rule of Vasishthiputra Śri Pulumāvi. Interestingly, there is a
sculptural rendering of upper drum slab with inscriptive reference to Pulümavi bequeathing the city of Ujjain to a certain Ajayata.

The ḍyaka platforms and the pradakshinā-patha were used to accommodate the Buddha sculptures in the third phase of the structural activity. Out of 13 sculptures of Buddha as many as 10 bear inscriptions mentioning the donees who caused them were from the same geographical area of Vākāṭaka territory. They also throw a welcome light on the guild of sculptors which might have prevailed during the time. One of the inscriptions mentions three generations of sculptors of the time.

The mēdhi slabs by far are the most sculptured, large size architectural members next to pillars. These carry inscriptions in bold letters of comparatively large size to enable their visibility at the top of the registers recording the donees. The sculptural renderings pertaining to the life of the Master, the Jātaka tales or persons depicted in the panels are identified and inscribed at the bottom register above the railing design. Sometimes, as in the panel of Hamsa Jātaka, Śuka Jātaka and the panel of Rāya Mahagōvidō and Nāgarāya Muchilinda, there are two short labels identifying both the depictions of a panel using the term upari for the upper register of the panel.

Even though a few inscriptions were found on the anṭa slabs - three to be precise - many inscriptions on pushpagrāhinis reflect the donations made towards the tharas or the courses of the dome (anṭa).

Periodwise the epigraphs of the place can be classified into those assignable to the (a)pre-Christian and (b) early Christian era;

(a) Records of Pre-Christian era.

Ranging in date from 1st century BC to 1st century AD, these are essentially associated with the early Sātavāhana phase of the structural/ornamentation activities in the stūpa complex. From the point of view of religion, the thematic delineations associated with these inscriptions have a pronounced hīnayāna affinity. Palaeographically these records show a preference to linearity, shallowness and narrow characters or letterings with varied size depending upon the surface or architectural units they are engraved upon, the height at which they are engraved and so on. For example, the inscriptions on the Vēdikā (lower drum) where they have been used as labels to identify the different vihāras, the size of letters are small and sufficient care has been taken to inscribe the label in the restricted area. Sometimes, two donatory inscriptions A.28 and B.180 are written on the same
Inscriptions

vēāikā veneer. The inscription engraved on the vēāikā sometimes may be the donation of something else rather than the architectural unit over which it is engraved as in case of the donations of a few pushpāgrāhinīs noticed in A 59 and A 60. The neatness or clumsiness in writing some of the inscriptions is dependent upon the surface and area of the respective architectural unit offers which is best exemplified in inscribing the donations of the pushpāgrāhinīs, wherein some of the inscriptions are written with a pronounced slanting which sometimes has distorted the letters or gives the appearance of illiterate scribe or a hurried writing. Though the inscriptions of this period are numerically less in percentage, they indicate variant forms of some early inscriptions issued by the dynasty, comparable to the early inscriptions found at Bhārnut and Sānchī both in content and calligraphy.

(b) Records assignable between 2nd century AD to 3rd century AD

This group of inscriptions presents well systematised, more ornate letter-forms.

General squarishness and angularity of the geometrical shapes get rounded off. U does not remain a well-fashioned right angle, the squarishness and equal size of horizontal and vertical lines of “Gha” are lost, the bottom straight lines of na and na get a slight curvature whereas the bottom line of Ma, Va and lobes of Chha get more angular up, and a slight artistic bend is seen in the left parts of Pa, Ba and Ha.

Among the other notable features mention may be made of the much elongation of the vertical lines of the letters a, ka, ra and even a tendency to an artistic curling up towards the right. The letter cha gets a pointed tip towards left.

The horizontal 8-shaped chha remains but the lobes rise as slanted or vertical lines and the vertical line rises from the left as a short stroke. More often ja occurs with rounded back. The semi-circular variety of ta appears rarely and the type with known cusp/loop at the left dominates. Generally ya assumes the form of a semi-circular arc with the central stroke of equal height. In addition to the earlier forms, the letter sa with equalised height of the verticals and the bottom left stroke in line with the body, becomes a common type. The practice of adding ornate cursive medial vowel-indicating signs and consonants get standardised.

<table>
<thead>
<tr>
<th>Medial</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>A thin elongated curve placed on the top opening towards left</td>
</tr>
<tr>
<td>T</td>
<td>Well differentiated from medial I, forms part of curve on top opening right wards</td>
</tr>
<tr>
<td>U</td>
<td>It is very much elongated, almost interrupting the succeeding lines</td>
</tr>
</tbody>
</table>
Records assignable from the 2nd century AD to 3rd century AD

These are associated with the middle and late phase of the structural embellishment in the stūpa complex and the thematic delineations associated with the records show a gradual preference to the Mahāyāna ideologies. It is interesting to note that the latest records in this group, especially those engraved on the Buddha pedestals and Buddhapādas, indicate the supremacy of Mahāyana Chetiya-vādins in the site.

Palaeographically, these records show a preference to neatly and deeply engraved smaller letters with ornamental serifs and vowel indicators with artistic curves. Consonant conjunct forms and precursors of distinct nail headed variety of the succeeding period also appear. Yet another noteworthy feature is perfect parallel arrangement of lines and interspacing of words. Even the donatory inscriptions tend to become longer with the names of the patron king, mentioning his regnal year along with the season, months/fortnight and the day.

Late 3rd Century AD Inscriptions (250 AD) (Buddha pedestals)

These inscriptions belong to the latest stage of Mahāyāna phase of the additions made to the stūpa in the form of positioning of the Buddha sculptures and present the latest stage of evolution in the script, which shows several distinctive features.

One feature strikingly recognisable is the gradual abandonment of emphasis on squareness of letters. All letter forms with very few exceptions appear in cursive ornate forms.

The following features could be specifically noticed:

1. Generally elongated, lower vertical, slanting towards left as in letters a, ka, na, ṅa, and ra. Medial i and u, aesthetically curl up towards left (this feature which had already appeared faintly in the inscriptions of Vasistsiptutra Sri Satakarni and of Gautamiputra Yajña Śri Śatakarni in a more ornate way, becomes a common feature in these inscriptions in a standard pattern).

2. Even the regular geometrical shaped letters of the earlier periods like u, ta, na, pa and ba start showing cursiveness.

3. The occasional use of the looped variety of ta, the sickle shaped ta and da need to be specifically noted. Occasional introduction ofandas (full stop), uniform spacing between letters and words is yet another development over the palaeography of inscriptions of Yajña Śri Śatakarni at the site.

Thickening of the top, beginning of the letters and the line indicative of medial ō, a feature also noticed in earlier sub group, continues. This may further indicate the precursor of the box-
headed characters of the paleography of the succeeding Vākāṭaka, Ikshvāku, Kadamba periods as also the beginning of southern variety of Deccan Brāhmi. This group includes inscription numbers Nos. A.78-87, A.147, A.148, A.150, and B.251 & 252.

**Dated Inscriptions**

Sl. No. 1. Inscription No A.101: Upper Drum slabs

1. **Raṇō Siri Chhimuka Sātavāhana** savachhare söde (10+6) Māhisēka
2. **Sagahapatīnō Tōkhisachana gahapatiputēsa sabhariyēsa sa(m)**
3. **Saputasā sajāmātūsa sasunhasa sāgotasa saduhūṭasasa**
4. **Kachuka dēya dhama dāna []* (Pl.CXLIII)**

This meritorious gift of the uppermost slab (agatuko pata) and its line by the nun Dharmasrī of the Kotujila family on the 10th day of 2nd fortnight of summer in the 16th (regnal) year of king Siri Chhimuka Sātavāhana (corresponds to circa 36 B.C. as per the shorter chronology arrived by Ajay Mitra Shastri22)

Sl. No. 2. Inscription No A.75 Floor slab, northwest, Pseudo-pradakshīpa-patha

1. **[Sidham]** Na (mō) Bhagavatō samasa Budhāsa adhōlōka mahā
2. **chē[t]jiyasa [*] Raṇō Vāsīthīputa Sirī Pūlumāviṣa**
3. **savacharē 30 + 5 Gīhmāna pakhē 2 [di] 10 Kötujiilāna**

4. bhikunīya Dharmāriyāya agatuko pathasa
5. tharō cha dēya dhama sahā amāpi hi sahā cha mā
6. upajātha hi bhayata varana Bhūtihi sahi cha bhayatasipēhi sava satāna cha hita sughātha [!*] (Pl.CXLIV-A)

Success. Salutations to the much enlightened Lord of the Adhōlōka mahāchaitya. Meritorious gift of the uppermost slab (agatuko pata) and its line by the nun Dharmasrī of the Kotujila family on the 10th day of 2nd fortnight of summer in the 35th (regnal) year of king Vasiṣṭhiputra Sirī Puḷumāvi along with her parents, all the preceptors, group of elders and the co-ascetics for the well being and happiness of all beings/creatures (corresponds to 126 A.D. as per the shorter chronology).

Sl. No. 3 Inscription No. A.15: tabha at northwest of western āyaka

1. **[Sidham] || Raṇō Vāsīthīputa Sirī Sādakaṇṇa savachchharē 5 Gīhmāna pakhē 4 divasa 5 Utarāhakōṇa Sātavāhana samanēna ujukāpatō chatā ica pāyakō dēya dhamā**

2. **sava Budha puchāya mātāpurīna punyāya sa[va]lōka hi(ta) sughāya [!*] (Pl.CXLVI)**

[Success]. On the fifth day of the fourth (fortnight) of the summer (grishma), in the fifth year (of the reign) of King Vasiṣṭhiputra Sirī Sātakarnī, meritorious
gift of mēdhi (ujukāpata=ūrdhvakapata) slab, umbrella (chhatra) and uprights (pāyaka) were made by Sātavāhana Samana of Uttarāhakona (northern states?), for the worship of all the Buddhas, towards the merit of parents and the well being of all the worlds (corresponds to 132 A.D. as per shorter chronology).

Sl. No. 4 Inscription No.A.68: Narrative frieze of western āyaka

1. Namō Bhagavatō [I *] Rāño Vāsithīputasa Siri Sātakaṇṭisa Sava 10+1 va pa 1 di 1 pava [y]ītasa Kanhasirīsa bhātunō Saghakasā dēya dha[ma] [I *] (Pl.CXLV)

Salutations to the Lord. Meritorious gift of Sanghaka, brother of monk Kanhasiri, on the first day of the first fortnight of the rainy season in the 11th (regnal) year of king Vasiṣṭhiputra Siri Sātakarni (corresponds to 138 A.D. as per shorter chronology).

Sl. No. 5 Inscription No.A.143: - Chhatradanda

1. Sidham II Rāño Gōtamīputasa Siri Yaṇa Sātakaṇṭisa Sava 10+1
2. Hēmatāna pakhe 1 diva 1 bhikhusa Dhamakadhikasa Bōdhikayasa
3. chchata dēya dhamā [I *] sahā mātāpithūhi sahā cha bhātū bhaginīhi
4. sava lōka hitāya [I *] (Pl.CXLIV-B)

[Success.] Meritorious gift of umbrella by Bodhikaya, a monk and religious head, along with his parents, brothers and sisters on the first day of the first fortnight of the summer during the 11th (regnal) year of king Gautamiputra Śrī Yajña Sātakarni. (corresponds to 191 A.D. as per shorter chronology)

Sl. No. 6 Inscription No.A.145: - Chhatradanda

1. .... Savachchara 10 ēṁhāna ...
2. .... dhama sahā bhāyāya ...
3. .... chata ahayō matāpi ...
4. ....ēna hitasughāya

Fragmentary. Meritorious gift of umbrella by ..dhamā along with his wife and parents for the well-being of all in the summer of 10th (regnal) year of [Yajña Śrī Sātakarni (?)]

The palaeography of the inscription closely resembles that of Sl.No.5 and hence it is ascribed to Gautamiputra Śrī Yajña Sātakarni.(corresponds to 190 A.D. as per shorter chronology)

Sl. No.7. Inscription No.A.150:

1. [Namo Bhagavatō Budhasa [I *] Raño Mōdhariputasa Siri Pulomāvisa Sava [chcharē] 10 diva 15 ka pavatakasa
2. [dē] vavanija putasa Hāgāna Kanhasirīsa samātukasa sapitukasa saputakasa dēya dhamā chētiyapāta sava.... [lōkahita sukhāya]

[Salutations to the Lord] Buddha. Offering of Chetiyapata (slab bearing Chaitya depiction) by Hāgāna Kanhasiri, son of trader Devavani, along with his mother, father and son on the 15th day of
10th year of the king Mādhariputra Śrī Puḷumāvi (corresponds to 236 A.D. as per shorter chronology)

From this inscription it is quite apparent that during the reign of the above king, almost all the structural activity of the stūpa had been completed and only a few alterations like changing the mutilated veneering of the eastern āyaka platform, introduction of Buddha sculptures over the āyaka platform at the cardinal directions and placing of Mānushi Buddhas in the sub-cardinal directions in the backdrop of non-ornate Vēdikā slabs, construction of square brick structures numbered V, VI, VIII, IX and X with votive chaityas and enshrining earlier Buddha pādas must have been carried out.

**Contentwise analysis**

The occurrence of considerable number of inscriptions from the stūpa site provide ample opportunities for a detailed contentwise analysis of them:

1. **Historical information:** Mentioning of many names of the Satavāhana rulers is a striking feature of the inscriptions, though in a different context. As many as 8 names of the Satavāhana monarchs are mentioned in the inscriptions. The most significant aspect however is the appearance, twice, of the name of the Mauryan emperor Asoka. Simuka, Śrī Śatakarni, Sundara Śatakarni, Mātalaka, Siva Śrī Puḷumāvi, Gautamiputra Śatakarni, Vasiṣṭhiputra Śrī Śatakarni, Yajña Śrī Sātakarni, and Mādhariputra Puḷumāvi are some of the names of other rulers appearing in these records.

2. **About Stūpa and its architectural members:** In the inscriptions the stūpa is referred to as Adhīlōka Mahachetiya (the great Chaitya of the nether worlds) besides the general terms referring to the stūpa as thūpa, thūbha, thūbhō, chaitya, mahāchaitya and adhīlōka chaitya. The names and their variants by which the other various architectural members were identified/distinguished also occur in these inscriptions. The parts of railing like pāyaka (uprights or the pillars), sūchi-crossbar (sūjika) are quite well-known. However, instead of the ushnisha - a common popular term for coping members, the architects or the scribes of Kanaganahalli have preferred mālā paṭa, ujkapaṭa - the upper friezes as it acts functionally as garland, depicting circumambulatory row of animals and it is the uppermost architectural component of the railing. Āyaka tabha (āyaka pillar), chatāri, chhata (umbrella), gōla (aṇḍa-dome slabs), pushpagrahaṇikā (flower receptacle) over the vēdikā are the other terms used for architectural members referred to in the epigraphs.

3. **Geographical divisions and place names:** Kanaganahalli stūpa, forming part of the suburb of the greater Sannati, was very much in contact with the well known contemporary Buddhist centres on the one hand and leading trade centres
on the other as it is located on one of the trade routes of the ancient Dakshināpatha connecting Pātaliputra and Banavasi via Paithan and Vidiṣa. It had contacts especially with the major trade centres like Isila (Brahmagiri) and Kupana (Koppal) in the far south, Dhānyakaṭaka (Amarāvati) and Kōṭura on the northwest and east, Vākāṭaka Vishaya and Ujjain in the central and further western India. Obviously, the names of these places figure prominently in the epigraphs. Dhānyakaṭaka, and its variant forms occur more than half a dozen times. Next in importance is the Vākāṭaka Vishaya. Place names Kōṭura, Ujjain, Isila and Kupana occur only once. It is interesting to note that these place names occur as part of the toponymical suffixes of personal names in the sense of ‘hailing’ from or ‘belonging to’ that particular place. Kāshi, Chēdi, Ujjaini, Rāmagrāma - are the few other place-names occurring in inscriptions of Kanaganahalli.

Kashi - The name of Kashi occurs as an identification of a character as Bōdhisatō Kāsirāyō evidencing the ancient city of Benares.

Ujjaini - It is the well-known capital of Vidiṣa. In the inscriptions at Kanaganahalli this place name occurs in the context of the visit of Pulumāvi to Ujjain, probably after the victory over Chastana.

Rāmagrāma - also occurs in the context of a label inscription referring to one of the highly sculptured stūpa depictions entwined by Nāgas as Rāmagāmilō athabhāgha thūbho upari. It is well known that Coliyas had built a shāririka stūpa over the relics of Lord Buddha at Rāmagrāma after having received one of their shares of eight divisions. It is also a known fact that Asoka attempted to open this stūpa and met with stiff resistance from the Nāgas.11 The theme is depicted at Sanchi Stūpa-1 on the southern (Pl.II, Fig.2, Vol.II) and eastern gateways without any label inscription.

Vākāṭaka - The term “Vākāṭaka” referring to the toponym of a territory or a clan appears as many as eight times. Interestingly, all these inscriptions are engraved on the pedestal of Buddha sculptures placed in the pradakshināpatha and over the āyaka-platforms. Palaeographically, and from the point of view of the phases of construction of the chaitya, the inscriptions, as well as the sculptures, belong to the last phase of the embellishment of the mahā stūpa. The term occurs as vākāṭīchāna and vāgāṭīchāna.

It is well-known to historians that the Vākāṭakas were the post-Satavāhana rulers in the upper Deccan, probably hailing from the Vindhyan region of the present Madhya Pradesh to the north of the River Narmada, who in their later stages moved southwards to Vidarbha and other regions of Maharashtra, Andhra Pradesh and Karnataka and exercised tremendous
influence over the wild tracts of the Deccan. They supplanted the Andhra Sātavāhanas in the south and Vidarbha around the close of 3rd century AD.

There are at least two inscriptions\(^\text{12}\) mentioning Vākāṭaka. The inscription of Amaravati (No.A.14) is a fragmentary record mentioning (the gift of) Vākāṭaka or pākāṭaka. R. Chandra\(^\text{13}\) suggests that the Pākātakas may be same as Vākāṭakas. Based on these inscriptions, R. Chandra points out that the Vākāṭakas in the Deccan could be traced as far back as 2nd century BC. However, the earliest known epigraphical information in Karnataka region comes forth from the Bidar plates of Dévasēna (5th regnal year - 455-458 AD).\(^\text{14}\) Dévasēna under reference, is the fifth king in the Vastugūmala branch of the Vākāṭakas and the father of Harishēṇa. However, the southern expansion of the Vākāṭakas had commenced as early as the later part of the reign of Pravarasēna-I (c.275-335 AD) by the end of 3rd century AD. The occurrence of the toponym Vākāṭaka in its variant forms at Kanaganahalli supplements the above fact.

Kūpana - The anda slabs chamfered at an angle and subsequently plastered, after the construction, also carry inscriptions - like Kūpanakasa, probably indicating the gift by a person hailing from Koppal (Karnataka).

The presence of two minor rock edicts at Koppal - at Palkigundu and Gavimatha at the highest altitude on the north and southern granatoid hillocks bordering the town which also has a number of dolmens of megalithic period, remnants of the brick-built structures (Sātavāhana period) on the foot of the hills especially on the way leading to the Palkigundu inscription\(^\text{15}\), reflect that Koppal was a fairly well-known place of hoary antiquity.

Mahāgama - The toponym Mahagama occurs twice (Ins.Nos.A.3&B.158) in Kanaganahalli inscriptions. This place could be identified as the present day Mahagaon in Gulbarga District. Significantly, the Directorate of Archaeology & Museums, Karnataka, which conducted explorations in the area has reported black-and-red ware, Russet-coated painted ware and red-slipped ware, characteristic of the early historical period.\(^\text{16}\)

Khalatika Hills - Interestingly, a seven-lettered label inscription provided on the plain border below the lower register of a drum slab of stūpa at Kanaganahalli reads, galatikō pavatō i.e., “Khalatika parvata” identified with the famous “Barabar hills” in Bihar. It may be noted that except the Aśoka inscriptions none of the other known Buddhist literary works make any reference to the Khalatika hills. Subsequently Patañjali refers to Khalatika in his Mahābhāṣya.

4. Monastic-orders/ranks:
Several persons have contributed their might for the construction and
decoration of the stupa. Amongst them many belong to the Buddhist order. The designations indicate different positions in the monastic order like upasaka, upasaki, bhiku/bhikunī, thēra, pavayita, antēvāsi and sutrantiṣa Dharmādyakṣa Upādhyāya, etc. offer material for an interesting study.

5. Religious affinity:

In spite of the fact that the sculptural delineations in the early phase have a strong Hinayana affinity and in the second phase the emphasis is laid on the Mahāyāna chism of Buddhism and the existence of a monastic complex (Bōtika [Bōdhikā?] vihāra) at Kanaganahalli, the epigraphs do not refer to any specific sect of Buddhism like Thēravāda, Mahisāsaka, etc. A number of terms referring to the hierarchy of the monks and teachers like thēra, āchāriya, dhamakadhika, pavayita, bhayata, bhiku and samana with their disciples are mentioned by name. But, the specific sect to which they belonged is conspicuous by its absence. Only two references to sutatikas (Sūtrāntikas - proficient in sūtras) occur. However, the sculptural depictions of Kāshypa, Duddhāsara (Dundubhīṣvara) and others who were deputed by the Mauryan Emperor Aśoka for the spread of Buddhism in the Himalayan region and scant references to Haimavata sect in the form of Himalāya dhama sisēhi (disciples of Himalayadhama) suggests the religious sect at Kanaganahalli could be Haimavata. The absence of mention of any specific sect here is akin to Bhārhut and Sānchi epigraphs and unlike that of Amarāvati in the northeast and Karlā, Bhāja, Kanheri, Nāsik, etc. in north-western Deccan.

6. Social order:

Similarly, information pertaining to the social and official order like Amācha, talavāra, kumāra and rathika also occur in the epigraphs.

The inscriptions retrieved have been categorised based on the architectural unit or sub-unit, on which they are engraved, and classified under part A (with photographs) and B (without photographs) for easy identification and better understanding.
### Inscriptions

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INSCRIPTIONS DISCOVERED ON THE VARIOUS ARCHITECTURAL AND SCULPTURESD MEMBERS AS PER THE TABLE

PART-A

I Railing

(a) Tabха (Pāyaka) (Uprights)

1) 1 (Na) vakamikasa Himalaya
   2 Dhamasisihi Mahinata(sa)
   3 dēya dhama [/ *]
      Pious gift of Mahinata, the religious disciple and an artisan hailing from Himalaya. It could also be the name of the individuals following Haimavata sect of Buddhism.

2) 1 Athasata kahāpanāni dirānī (ma).
   2 diyasata dharana āyuvadhaniya
   3 gayanasa Dhamilayasa dēya dhama [/ *]
      Pious gift of a treasure of 800 karshapanas and 200 Dirana (dinaris?) for longevity of self by Dhamilaya.

3) 1 Mahāgañilasa NaGaṇakasa
   2 kōtubiniya Rāmamnikāya dānam [/ *]
      Pious gift of Ramamnīka, wife of Naganaka, hailing from Mahāgrāma.

4) 1 Utārānām āyuvadhānīkam Chulāyāya
   2 dēya dhamaṃ pāyakō sasūjikō imāṃ (pi) [/ *]
      Pious gift of the pāyaka (upright) together with the sūchika (crossbar) by Chuliyā, for the longevity of Utārā.

5) [Ma]hi[sa]kasa Tōtupāsa
   kasa dānam [/ *]
      Pious gift of Totupāsaka, a lay worshipper from Māhiśaka.

6) Balivārakasa Ghōsakayasa dāna [/ *]
   Pious gift by Ghōsaka from Balivārika (or gift by Balivārika (?), an official announcer of
   U R D O L Q M X Q F W L R Q V

7) Mitanasaka dā(na) [/ *]
   Gift by Mitanaka.
8) Thērāsa āya Isirakhitaśa atēvāsiniya bhikhuniya Naguyāya dēya dhama [I*] (Pl.CXXX.8)
Pious gift of Nāguyā, a nun and disciple of the revered teacher Rishirakshita.

9) (Pa) vayitasa bhūtilasa (dē)ya dhama [I*] (Pl.CXXX.9)
Pious gift of Bhūtila a monk.

10) Utarāṇam āyuvadhanikam Chulaya ya dāna dēya dhammaṁ pāyakō sasūjīkō [I*] (Pl.CXXX.10)
Pious gift of pāyaka (upright) together with the sūchikas (crossbar) by Chuliyā, for the longevity of Utārā.

11) .[i]nayasa d?ya dha?ma? ēya dhammaṁ [I*] (Pl.CXXXI.1)
Meritorious gift of ..inaya.

12) Himarakhitāya atēvā siniya Vidhiya dānam [I*] (Pl.CXXXI.2)
Pious gift of Vidyā, female disciple of Himarakshitā, a nun.

13) Sētivayikāya Isi lanikāya dā[nam] [I*] (Pl.CXXXI.3)
Pious gift of Rishilaniķā from Sētivāyīka or Śrīvātīkā.

14) Pavayitasa... (Pl.CXXXI.4)
(Pious gift) of a monk.
Sl.Nos 14 and 160 appear to form parts of the same inscription. Reading together they mean Pavayitasa Malasadānam, pious gift of Malla, a monk.

15) 1 [Sidham] II Rajīṭo Vāsithīputasa Siri Sādakanisa savacchcharē 5,Gīmāna pakhē 4 divasa
5 Utarāhakōṇa Sātavāhana samaṇēna ujukā patō chatāricha pāyakō dēya dhama [I*]
2 sava Budha puchāya mātāpītūna punyāya sava
3 lōka hi(ta) sughāya [I*] (Pl.CXXXI.5)
On the fifth day of the fourth (fortnight) of the summer (grīshma), in the fifth year (of the reign) of King Vāsishṭiputra Siri Sātakarṇi, meritorious gift of mēdhi (ujukāpāta=ūrdhvakapāta) slab, umbrella (chhattrā) and uprights (pāyaka) were made by Sātavāhana Sramaṇa of
Utarāhakona (northern states?), for the worship of all the Buddhas, towards the merit of (his) parents and the well being of all the worlds.

16) 1 (Bhō)gavadhanakasa Bōdhi Gahapatinō
2 nasa Īsimitasa pāyakō sa
3 (sū) chikō sa ālabajño dēya dhama [/ *] (Pl.CXXXI.6)

Pious gift of pāyaka (tabha), sūchika along with ālabajano (ālambana i.e. ushnīsha) by Rishimitra, a relative of house holder Bodhi from Bhogavardhana (modern Bhokardan).

(b) Sūchi (crossbars)

Curiously enough none of the suchis are inscribed though they formed the absolute component of the ālambana or pāyaka.

(c) Ushnīsha (ālambana)-Coping on railing

17) Bhikhuniya pusayāya dēya dhammam [/ *] (Pl.CXXXI.7)
Pious gift of Pushyā, a nun.

18) Bhūtamnikāya bhūyi....ya dēya dhamam [/ *] (Pl.CXXXI.8 & 10)
Pious gift of Bhūtanikā, and of Bhuyi (mā)....

19) Dhamutarayāya dānam [/ *] (Pl.CXXXI.9)
Gift of Dharmottara.

20) Rakhitanikāya duhūtaya Samanikāya dēya dhamam [/ *] (Pl.CXXXI.11)
Pious gift of Samanika, daughter of Rakhitanika.

21) Nagiyānāguta (Pl.CXXXI.12)
Indistinct. (Nagiyagupta)

22) Amāchasa Budhiṇakasa dānam [/ *] (Pl.CXXXII.1)
Pious gift of Amatya Budhanaka, a minister.

23) Bhuyima bhikhuniya dēya dhamam [/ *] (Pl.CXXXII.2)
Pious gift of nun Bhuyimā.
(a) VEDIKA SLABS

24) Āyasa Ānadasa vihāro [/*]  
Vihāra of Ārya Ānanda. (Pl.CXXXII.3)

25) Āyasa Sāriputasa vihāro [/*]  
Vihāra of Sāriputra. (Pl.CXXXII.4)

26) Piyaka mātucha dāna [/*]  
Gift by the mother of Piyaka (Priyāṅkar). (cf. Ins. No.39) (Pl.CXXXII.5)

27) Khōdamulāyāna Dhamayāya dā [nam] [/*]  
Pious gift of Dhamayā of Khōdamulāyā. (Pl.CXXXII.6)

28) (Dha)njakaṭikaya Ayadāsiyasa pumphagahanikā dāna [/*] (Pl.CXXXII.7)  
Gift of flower receptacle by Āryadasiya of Dhānyakaṭaka (Amaravati). (Pl.CXXXII.7)

29) .. sa aya Budharakhitasa sapupthagahanika dā [na] [/*]  
Gift of flower receptacle by revered Buddharakshita of... (place name missing). (Pl.CXXXII.8)

30) ..[si]rikāya saputakāya sa duhūtukāya dāna [/*]  
Pious gift of ...sirikā along with son and daughter. (Pl.CXXXII.9)

31) ..[kā]rasa Mahāmaritinō cha Tōdakāda cha dāna chēdiya [/*]  
Gift of chaitya (slab with chaitya motif) by Mahāmariti and Tōdakada belonging to...kara. (Pl.CXXXII.10)

32) Kagisa sabha(ri)yasa saputakasa (sa) d[h].  
Offering by Kagi....(missing) along with his wife, son and daughters.. (Pl.CXXXII.11)

33) [Dh]aramakanhasa bhāriyāya Sivāsinikāya dāna. [/*]  
Pious gift of Sivāsinikā, wife of [Dh]aramakanha. (Pl.CXXXII.12)

34) Chakamō [/*]  
Promenade. Chaṅkama. (Pl.CXXXIII.1)

35) Kōsambhakuti [/*]  
Monastery of Kōsambi (Pl.CXXXIII.2)

36) Utupākhō [/*]  
Ritupaksha. Female retreat or apartment (for nuns). (Pl.CXXXIII.3)
Excavations at Kanoganahalli (Sannati)

37) Āyasa Ānadasa [/*]
[Dwelling of] Ārya Ānanda.

38) Bhagavatō [/*]
Dwelling of the Master.

39) Yakhi... Piyēkaramātā [/*]
Beloved mother of Yaki (Yakshi) Priyakara (Priyāmkara).
The figure of the woman referred to in the inscription is seated in the tiled pavilion with finials behind the gate house located in the foreground of the compound of the Jētavana next to the hermitage of Buddha. She is holding a lotus (lotus dvaja?) in her right hand with an attendant by her side and a child on her left lap. In this context it is interesting to note that the sarīyukta Nikaya (X.6) briefly narrates the story of a local yakshi known as Priyāmkara’s mother who became an ardent devotee of Buddha. “She ... with her boy on her hip came unexpectedly on the settlement and heard the sweet voice in the vihāra. Cut to the heart and smitten to the marrow, she stood like a post.” Later Chinese sources associated the story with yakshi Abhirati, mother of Priyāmkara with the Buddhist goddess Hariti17.

40) Ayasa Rahulasa
[Dwelling of] Ārya Rāhula.

41) [ya] (khō) Gosārāgirō [/*]
Yaksha ..... Gosārāgirō

42) Navakamikasa Ayamalasa mātuya ayaha dāya kammāya cha dānam [/*]
Pious gift by the mother of Āryamalla, a supervisor (navakamika) for the slab (aya) and the carving (dāya kamma) on it.
The inscription begins with a triratna and ends with a swastika - auspicious symbols.

43) Nākarāya Mahakāla. [/*]
Serpent king Mahākāla.

44) paṭō āyākō [/*]
Āyaka veneering slab.
45) (U)pāsakasa Bōdhigutasa dāna [1 [*]  
Pious gift of lay worshipper Bōdhigupta. (Pl.CXXXIII.12)

46) māya dāna Utaramitasa [1 [*]  
Pious gift of ..........(object of gift missing) by Utaramita. (Pl.CXXXIII.13)

47) Thērāsa....asa atēvasikasa Āya Ju... bhaginikasa patō dāna  
Pious gift made for the slab by Ārya Ju..., a disciple of...(name missing), the elder along with his sister. (Pl.CXXXIV.1)

48) [Ga]hapatinō upasakasa paṭō [1 [*]  
[Gift of] a (drum) slab by a lay worshipper and householder...by name. (Pl.CXXXIV.2)

49) Gahapatinō Chidōga ...  
[Gift of] householder Chidōga. (Pl.CXXXIV.3)

50) Samanasa Yakhasa dāna [1 [*]  
Pious gift of Yaksha, a monk. (Pl.CXXXIV.4)

51) Pōkōṭurakasa yakhasa dhama cha ..nō  
Pious gift by Yaksha from Pokōṭura .... and ....  
(the name of the object donated is missing). (Pl.CXXXIV.5)

52) Mahisēkasa sapulitiyasa sabhāriyasa  
..silasa paṭō dānam [1 [*]  
Pious gift of (drum) slab by .... sila from Mahisēka along with his wife and daughter. (Pl.CXXXIV.6)

53) Dhamṇakatikāya pavayitasa Āyamitāya  
Duhutīya cha sa...  
Pious gift of Āryamitra, a monk from Dhānyakatāka,  
along with his daughter. (Pl.CXXXIV.7)

54) Chula(yakha) mātuya u[pā]sikāya dānam paṭō [1 [*]  
Pious gift of the slab by a lay-worshipper and mother of Chula Yaksha. (Pl.CXXXIV.8)

55) Dhanyakaṭikā...  
Dhanyakatāka. (Pl.CXXXIV.9)

56) Sāpuḍiyasirikasa Bōḍhiyasa putigāya paṭō dānam [1 [*]  
Pious gift of Bōḍhiya hailing from Sāpuḍiyasirika along with his daughter. (Pl.CXXXIV.10)
57) **Sutatikasa Āyagōlasa atēvāsīsa Samasa dāna [1/1]**
   Pious gift of Sama, the disciple of Ārya Gōla, proficient in all the Buddhist Suttas (Sutatika=Sūtrāntika).

58) **...sa Bhadākarikasa Mahāsamasa dāna [1/1]**
   Pious gift of Makasamas from Bhadākārika.
   The personal name Makasmas appears to be of Greco-Roman origin.

(b) **Pushpagahaniś** (Pushpagrāhiniś) [Flower receptacles]

59) **Khajanākarasa Māhisēkasa Kūpaṇasa dānam [1/1]**
   Pious gift of Mahisēka (a Khajanakāra) from Kupaṇa (?).

60) **Khajanākarasa Māhisēkasa Kūpaṇasa dānam [1/1]**
   Pious gift of Mahisēka (a Khajanakāra) from Kupaṇa (?).

61) **Thērasa āya Punavasuno dāna sava Budhapuyaya [1/1]**
   Pious gift of the revered elder Punarvasu for the worship of all the Buddhas.

62) **Dhānyakatikāya gharaniya Naguya [dana] [1/1]**
   Pious gift of Naguya, a house wife from Dhānyakataka.

63) **Dhamasirīya pato dānam [1/1]**
   Pious gift of slab by Dhamasīrī. The inscription is preceded and succeeded by **nandipādas**.

64) **Nandakasa dāna [1/1]**
   Pious gift by Nandaka.

65) In two fragments
   (a) **Dhānyakatikāya Nagilōya**
   (b) **manikārakasa mahāmāritinō sa bhāriyasa saputakasa saduha... māṭusēkasa dāna chētiya puphagaha nika [1/1]**
   Auspicious **nandipāda** mark in the beginning. Pious gift of flower receptacle by Nagilōya, a maker of beads (manikāra) and a Mahamariti from Dhānyakataka along with his wife, son, daughter-in-law and mother to the stūpa.

66) **[Gaha]....pataniyaya Sudhamāya saputikāya dāna upāsa (i) [1/1]**
   [Pious gift of]... housewife Sudhamā along with her daughter, a nun... (name is lost).

67) **Dhānakaṭikāya Utarāya [1/1]**
   Pious gift of Utarā from Dhānakaṭikā.

**Excavations at Kanaṇahallī (Sannati)**
(c) Paṭimā paṭa (narrative friezes)

**Western Ayaka**

68) **Namō Bhagavatō [ / *] Rājīno Vāsithiputasa**

*Siri Sātakanṣa Sava 2 va pa 1 di 1 pava [y]itasa Kanhasirisa bhāṭunō Sahakasa dēya dha[ma] [ / *]

Salutations to the Lord. Meritorious gift of Sanghaka, brother of monk Kanhasiri, on the first day of the first fortnight of the rainy season in the 2nd (regnal) year of king Vasisthiputra Siri Sātakarni.

69) **Bōtikāviḥāraṇām Thērāna bhayata Hāgānam atēvasi (kasa) Kanhasirasa sa[va] lō[ka] hitādha cha [sava] Buddha [pu] jāya dēya dhama amā (pihi) ...ta...

Meritorious gift (object of the donation mutilated) by Kanhasiri, a disciple of Haghana, the revered elderly monk of Bōtikā (Bōdhikā) vihāra, for the well being of all and worship of all the Buddhas.

70) **Pava(yita)sā Kanhasirisa bhaginiya Nānikāya dēya dhama [ / *]**

Meritorious gift of Nāṇikā, sister of monk Kanhasiri.

**Northern Ayaka**

71) **Āchalyāna bhayatasa Sātakamnha [kasa]. atēvasini[ya] (pa)[va][y] itāya Budharakhitāya āyako paṭo Ādhōlokā chetiya dhamarāika dēya dhamo patima patti(kā) [ / *]

Meritorious gift of āyaka paṭa (veneering slab) bearing Ādhōlokā chetiya dhāmmarāika (ādhōlokā chetiya Dharmarājika) and the patimā-pitikā (pratimā paṭṭikā-sculptured narrative frieze) by Budharakhta, a nun and disciple of the revered preceptor Sākta kamnha.

72) **Sidham II Kōtugaliṇā āchariyāṇām bhayata Sāta(k)amnha(sa) atēvāsiniya bhikhuniya Dharmarakhitāya adhā(lō) [ / *]

(Meritorious gift of ...) to adhalōka (chaitya) by Dharmarakshitā, nun and disciple of the revered preceptor Sātakanha (Śvātikrishna or Sātakarni) from Kōtugaliṇā.
Āyaka Pillar: Eastern Āyaka

73) 1. Dhañnakadakasa
    2. Naṭabāhōkāna
    3. Utāka putasa
    4. gahapatino
    5. Asilasa
    6. sa mātukasa
    7. sa bhāriyasa
    8. saputakasa
    9. āyuvadhanika
   10. āyagō thabho

11. chatāri dēya dhama [/ *]  
Meritorious gift of the āyaka pillar and umbrella by Asila a householder, son of Utāka of Naṭabāhuka family of Dhānyakaṭaka, along with his mother, wife and son for their longevity.

74) 1. āya......  
2. chatāri dēya dhama [/ *]  
Meritorious gift of the āyaka pillar and umbrella by.....

(e) Pradakshina patha floor slabs over Vēdika

75) 1. Sidham Il Na (mo) Bhagavatō samasa Budhasa adhōlōka mahā  
2. chie[t]iyasa [il*] Raṅō Vāsithiputa Siri Puḷumāvisa  
3. savacharē 30 + 5 Gīhmāna pakhē 2 [di] 10 Kōtujiłāna  
4. bhikuniyā Dhamasiriyāya agadukō patasa  
5. tharō cha dēya dhama sahāamāpihi sahā cha ma  
6. upajātha hi bhayata varana Bhūtihi sahā cha bhayatā  
7. sipēhi sava satāna cha hita sughātha [i*]  
Success! Salutations to the much enlightened Lord of the Adhōlōka mahāchaitya. Meritorious gift of the upper most slab (agatuko-paṭa) and its line by the nun Dharmaśrī of the Kotujila family on the 10th day of 2nd fortnight of summer in the 35th (regnal) year of king Vasiṣṭhiputra Śrī Puḷumāvi along with her parents, all the preceptors, group of elders and ascetics for the well being and happiness of all creatures.
Near Eastern Āyaka

76) **Budhāya dānam** [ / *]

Pious gift of Buddha

(Pl. CXXXVI.9)

South-west corner

77) Tisāya upāsikāya dānam [I*]

Pious gift by Tisyā, a female worshipper

(Pl. CXXXVI.10)

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### III. (a) Buddha sculpture pedestals

78 **Krakuchchaṇḍa:**

**Sidham [ / *] Bhagavā samasa Budhō Kōsadhō [ / *]**

Upāsakēṇa Vākātichāṇa Visākhēṇa saputakēṇa

kari[ā]pita [ / *]

Success. (This image of) the perfectly enlightened Lord Kōsadhō (Krakuchchaṇḍa) is got carved by the lay worshipper Visākha hailing from Vākātichā along with his son.

(Pl. CXXXVII.1)

79 **Kanakamuni:**

**Sidham [ / *] Bhagavā samasa Budhō Konāgamuni [I*]**

Upāsakēṇa Vākātichāṇam Visāghēṇa

saputakēṇa kāritō [I*]

Success. (This image of) the perfectly enlightened Lord Konagamuni is got carved by the lay worshipper Visākha hailing from Vākātichā along with his son.

(Pl. CXXXVII.2)

80 **Vipasyin:**

**Bhagavā Budhō Vivasi [ / *] Upāsakēṇa Vākātichāṇam Visaghēṇa karapito saputakēṇa [ / *] Sēli[va]dhaki (sa) Āsadēvasa panatukēṇa Samināgasa natukēṇa Mādhasa putēṇa rāyāmāchēṇa Bōdhigutēṇa katō [ / *]**

(This image of) Lord Buddha Vipaśyin is got carved by Viṣākha of Vākātichā along with his son. Bōdhigupta, the sculptor and the royal minister (Rājā-mātya), son of Mādha (Mādhava), grandson of Sāmināga (Swāmināga) and great grand son of Āsadeva (Vāsudeva) executed it.
Excavations at Kanaganahalli (Sannati)

81 Sikhin:

_Bhagavā Samasa Budho Sighi [/ *] Vākāṭichāna_  
_Visaghēṇa saputakēṇa Karito [kārāpitō] [/ *]_  
_Sēlivadhakīsa Ā[sa]dēvasa panaṭunā Samināgasa_  
_natukēṇa Mādhasa putēṇa rāyamachēṇa_  
_Nāga budhinā katō [/ *]_  

(This image of) the perfectly enlightened master Sikhin is got carved by Visagha of Vākāṭīcha along with his son. Nāgabudhi the sculptor, son of Mādhā (Mādhava), grandson of Sāmināga (Swāmināga) and great grandson of Āsadeva (Vāsudeva) executed it.

82 Vishvabhū:

_Bhagavā Budhō Vēsabhu [/ *] Vākāṭichāna_  
_Visaghēṇa saputakēṇa Kāritō [Kārāpitō] [/ *]_  
_Sēlivadhakīsa Ā[sa]dēvasa panaṭunā Samināgasa_  
_natukēṇa Mādhasa putēṇa rāyamachēṇa Bōdhigutēṇa_  
_katō [/ *]_  

(This image of) the Lord Buddha Vishvabhū is got carved by Visagha of Vākāṭīcha along with his son. Bōdhigupta, the sculptor and royal minister, son of Mādha (Mādhava), grandson of Sāmināga (Swāmināga) and great grand son of Āsadeva (Vāsudeva) executed it.

83 Kaśyapa

_Sidham [/ *] Bhagavā samasa Budhō Kasapā [/ *]_  
_Vākāṭichānam Visahanēṇa saputakēṇa kāritam_  
_[kārāpitam] [/ *]_  

Success. (This image of) the perfectly enlightened Lord Kaśyapa is got carved by Viṣākha hailing from Vākāṭīcha along with his son.

84 Śākyamuni-Siddhārtha

1. _Sidham [/ *] namō Bhagavatō samasa Budhō Sakapati ..._  
2. _[Sidhathō]... [/ *] Visaghāneṇa saputakēṇa karītm_  
   _[kārāpitam] [/ *]_  
3. _Kanhilēṇa kātā patimā piddhita (kā) [/ *]_  

Success. (This image of) the perfectly enlightened Lord Śākyapati Siddhārtha is got carved by Viṣākha
hailing from Vākāṭīcha along with his son. Kanhila
carved this image and the pedestal.

85 **Maitreya (Anāgata)**

1. **Sidham [ / *] Bhagavā Bōdhisatō ayito Anāgatō**
   
   Budhō [ / *] Upāsakēṇa Vākāṭīchānam

2. **Visaghēṇa saputakēṇa kāritō [kārāpitam] [ / *]**
   
   Savalōkasa [va] hita sughā [ya] cha [I*]

   (Pl. CXXXVII.8)

   Success. Lord Bodhisattva, the transcender of the universe,
yet to be born as Buddha is victorious. (This image) is got
carved by Viśākha hailing from Vākāṭīcha along with his son
for the well being of all worlds.

86 Line 1: **Sidham [ / *] Namō bhagavatō [ / *] Budhāsa**

   **Sakamanasa Patimā thāvitā Mathikumāra**

   (The inscription continues in four vertical lines henceforth)

   **Line (a) bha jē ya .radhāya**

   **Line (b) punhāya khajagōpiya**

   **Line (c) duhū[tu] kēṇa dhama**

   **Line (d) kara . . . [I*]**

   (Pl. CXXXVII.9)

   Success, [I*] Salutations to the Lord. (This) image of
Buddha Śākyamuni is installed by Mathikumāra
(son of a minister?). Further details are not clear.

**Detached Pedestal**

87 Buddha Pedestal, Southern āyaka

   **a-1Dāraghāttikēhi Bhagavitō**

   **a-2 Budhāsa patimā karito [I*]**

   **b-1[A or P] sabhūtinō Upajhāyēṇa natukēṇa**

   **Venōna Upajhayēṇa**

   **b-2putena Najikēṇa katō [I*]**

   (Pl. CXXXVIII-1 A & B)

   A. This sculpture of Lord Buddha was got carved by
   Dwāraghāṭikās. They could be the persons hailing
   from the place named Dwāraghāṭikā probably
   Naneghat.

   B. This (sculpture of Buddha) is carved by Nājika,
   son of Vēnu Upādhyāya and maternal grandson
   of [Asva or] Pushpabhūti Upādhyāya.
**Excavations at Kanaganahalli (Sannati)**

**Buddha-pādās**

88 Str-VI North Fig (front)

1. थेरान भयाता बुधहताताना अतेवासिसा
   भयातासा शिहालासा उपाज्याकासा देया धधमा
   पाया पातो माहाँचेतिकासा सहाय चारी

2. या उपाज्याहे (सहा) हा मातू पितुसी सहायावासेहि
   सवा सताना हितामहावाहाया [/*]

This footprint slab and the votive stūpa are the meritorious gifts of revered Upādhyāya Siha (Simhaka?), the disciple of revered elder Buddhatrāta (one who has Buddha as his protector), along with co-preceptors, teachers, parents, residents and students (at the monastery) for the attainment of well being of all.

Notice the appearance of box headed character along with triangular serif.

89 Along the top of the ridge of Buddhapada

*Thērāna bha[ya]ta Budhatatāna [a]tēvasisā*  *Bhavajihakasa pavatayakasa dēya dhama*  *paya patō [/*]

This foot print slab is the meritorious gift of the monk Bhavajivaka, the disciple of revered elder Buddhatrāta (one who has Buddha as his protector). Instead of Pavatayaka, the scribe has inscribed pavayataka – a scribal error of akshara vyatyaya.

90 Along the front edge of Buddhapada

... Midhiya cha samuddi ...

Fragmentary record Midhiya and Samriddhi

91 Along the front edge of Buddhapada

1. *Sidham [/*] Thērana bhaya Budhatatānam*  *atēvāsisā bhaya Sihasa dēyadhama pat(o) [/*]

2. *mahāchētīchā sahā Achārihīkē Upajhāṭēhi sahā*  *māṭōpitū [hi] sahā cha atēvā sikēhi*

3. *[sava] lō[ka] hitātha [/*]

(Pl. CXXXVIII.2)
(Pl. CXXXVIII.3)
(Pl. CXXXVIII.4)
(Pl. CXXXVIII.5)
Success. This footprint slab and the votive stūpa are the meritorious gifts of revered Siha (Simhaka), the disciple of revered elder Buddhārāta (one who has Buddha as his protector), along with teachers, co-preceptors, parents and students (at the monastery) for the well-being of all worlds. Instead of acharikēhi the scribe has inscribed as achārihikē – a scribal error of Akṣara vyatya.

92 **Along the top corner of front edge**

_Sidham [ / *] Namo Bhaga ... deya dhama ... yāya_ (Pl.CXXXVIII.6)

Fragmentary.

(IV) (a) **Upper drum (Mēdhi) – sculptured veneering**

_Inscriptions mentioning names of Royal personalities._

93 **Bōdhisatō Sōmarātō [ / *]**

Bōdhisatva Sōmarāta.

94 **Rāyō Mātalako [ / *]**

King Mātalaka (Maṇḍālaka or Puttalaka). The 18th king of the Sātavāhana dynasty according to puranic genealogy (longer).

95 **Rāyā Asōko [ / *]**

King Asōka.

96 **Rājā Siri Chhimuka Sādavāhanō Nāgarāya sakhāvāvi(pi) [ / *]**

King Siri Chhimuka Sādavāhana and his friend serpent king.

97 **Rāyā Asōko [ / *]**

King Asōka.

98 **Rāya Chakavatī Satarajānō [ / *]**

King Chakavatī Satarajānō (Mandhāta Chakravarti).

99 **Rāya Pudumāvi ajayatsa Ujeni dēti [ / *]**

King Pudumāvi is handing over Ujjayini to Ajayata.

100 **Rāya [U] dayanō [ / *]**

King Udayana.
1. Raṇō Siri Chhimuka Sātavāhanasa savachhare sode (10+6) Māhisēka
2. sa gahapatinō Tōkhisachana gahapati putēsa sabhariyēsa sa.
3. Saputasa sajāmātusa sasunhasa sagōtasa saduhū(ṭasa)
4. Kachukā dēya dhama dāna [/ *] (Pl.CXXXIX.9 a-d)
   This meritorious gift of encasement (kachukā=kaṅchukā)1* slab made by householder Tōkhi from Mahisēka along with wife, son, son-in-law, daughter-in-law, kinsmen and daughter during the 16th (regnal) year of king Siri Chhimuka Sātavāhana.

102 Rāya Sātakamni (sa) gayasara himayāni payumāni dēṇō yetī [/ *] (Pl.CXXXIX.10)
   King Sātakarnī arrives to gift golden lotuses to Gayasara (?).

Jātakās

103 Jātakam Chhadatiyam [/ *] (Pl.CXXXIX.11)
   Shaddanta Jātaka.

104 Jātakam Chhadatiya [/ *] (Pl.CXXXIX.12)
   Shaddanta Jātaka.

105 Jātakam Chhadamtiyam [/ *] (Pl.CXXXIX.13)
   Shaddanta Jātaka.

106 Jātakam Jagarakhasa [/ *] (Pl.CXXXIX.14)
   Jātaka of an alert (monkey) (?).

107 Jātakam Vidura Puṇakiyam [l*] (Pl.CXXXIX.15)
   Vidura(paṇḍita)-Pūrṇaka Jātaka.

108 Jātakam Sadiniyam [/ *] (Pl.CXXXIX.16)
   Sajiniya Jātaka.

* The word kachukā used reflects the encasement of a previously existed structure as reflected in Mahāvamsa 1.42, a Buddhist chronicle referring to a pagoda encasing another Pagoda. (Rhys davids and William Stede; Pali English Dictionary, p.176).
109 Jātaka Vidura Puṇākiyam [/ *]
Tōmda gahapatinō dēya dhama sava [/ *]
Vidura (paṇḍita)-Pūrnaka Jātaka
Meritorious gift of householder Tōmda of all (all refers probably to the successive panels of this Jātaka).

110 Jātaka Sudassōmiyam [/ *]
Sutasōma Jātaka.

111 Jātaka Vēsantariya [/ *]
Vēssantara Jātaka.

112 Hamsa Jātaka upari [/ *]
Hamsa Jātaka – above (in the upper register).

113 Suka Jātaka [/ *]
Suka Jātaka.

114 Jātaka Aridamiya [/ *]
Arindama Jātaka.

115 Jātaka Sēnakiyam upari [/ *]
Sēnakiya Jātaka above (above here refers to the depiction in the register above).

116 Jātaka Velāmiya [/ *]
Velāmiya Jātaka (?).

117 Jātaka vēsatariya [/ *]
Vēssantara Jātaka.

118 Idasāla guhā
Indrasala cave. Dwelling of Indraśālā.
This is identified as a natural cave at Griyak situated on the outer face of the eastern hills of Rajgir. It is the site where Śakra once is said to have visited Buddha in order to solve his doubts. The place contains, among other ruins, a cylindrical brick stūpa said to have been built by Aśoka. The stūpa in its extant condition measures 28 feet in diameter and 21 feet in height, standing on a 14 feet high plinth.\[18\]

119 Hemavatā Yakhō nāgāhi [/ *]
Yakshas (= Garuda) and Nāgās of Himalayas.

120 Bhakavatō je [na na] [/ *]
Birth of the Lord.
121 **Sākiyavadhanam chērapiyam**
Presenting baby Siddhartha in front of Śākyavardhana (?)

122 **Sarīramibhagō** [ / *]
Division of relics. (Worldly pleasures?).

123 **Abhinigamana** [ / *]
Departure.

124 **Chūdaharana** [ / *]
Transportation of the crest jewel.

125 **Mārabhago** [ / *]
Defeat of Māra.

126 **Dēvōharaṇam** [ / *]
Descent of the Lord.

127 **Galatikō Pavatō** [ / *]
Khalatika mountains.

128 **Ayasa Kasapagōtasa Sivikāpayānam** [ / *]
Travel of revered Kaśyapagotra in a palanquin.

129 **Sarira vibhagō** [ / *]
Division and transportation of relics.

130 **Upayāna** [ / *]
The approach for siege.

131 **Jaṭṭāgharoḍh*]
Chaityagriha (?) Jaṭṭagriha.

132 **Rāmagāmilō athabhāghathūbhō upari** [ / *]
(Depiction) above is the Asḥṭabhāga-stūpa (stūpa built over 1/8th portion of relics) at Rāmagāma.

133 **Nāgarāyā paṭārakō**
Serpent king Bhaṭṭāraka (revered serpent king).

134 **Suvirā Sākiyāṇi**
Suvirā with her friends (Suvira, the Śākya princess).

135 **Lagukōmēya kathālikā**
Story of Lagukōmēya.

136 **Isaradāhiko Ghumaṭa putō**
Īśvaradāhaka, son of Ghumata.
137 **Ayō Chēdiyavanīyō Mūd(r)aka sēthī Kumārō cha [l*]**
Ārya Mūd(r)aka Sēthī, a revered trader from Chedi country, along with his son.

138 **Todakāḍasa kachukanyō t[d]āna**
Gift of the encasement slabs by Todakāḍa.

139 **Ayō Mahimō Sachanāmō ayō cha Dudhubisarō [l*]**
The revered Mahima (Majjima) Satyanāma and the revered Dundhubīsvara.

140 **Dēvi Sāmivati [l*]**
Queen Sāmivati.

141 **Suja (ta) . . . mi ka duhū . . . cha Nāgarāyā [l*]**
Fragmentary. Suja, daughter of ... and the serpent king.

142 **Satipaṇaguḥā [l*]**
The sacred cave.

**Chhatradanaṇḍas**

143 1. **Sidham [ll*] Rañō Gōtamiputasa Siri Yaña Sātakanisa Sava 10+1**
2. **Hēmatāna pakha - diva - bhikhusa Dhamakadhikasa Bōdhikayasa**
3. **chata dēya dhama [/] Sahā mātāpitūhi sahā cha bhātū bhaginihi**
4. **sava lōka hitāya [/]**
   Hail! Meritorious gift of umbrella by Bōdhika, a monk and religious head, along with his parents, brothers and sisters on the first day of the first fortnight of the summer during the 11th (regnal) year of king Gautamiputra Śri Yajña Sātakaṇṭi.

144 1. **Sidha[m] [ll*] Namō Bhagavatō Budhasa [/]**
   **Bhikhusa Budhikayasa chchata dēya dhamam [/]**
   **Sahā mātāpitūhi**
2. **sahā cha bhaginihi gōlā cha Bodhi [ya]a cha Savalōkahitāya [/]**
   (Io is written between sa and va below as a fourth line) Success. Salutations to Lord Buddha. Meritorious gift of umbrella as also the votive stūpa (gōla) (and the veneering slab depicting) Bōdhi tree by monk Budhikaya (Bōdhikārya...
revered Bödhika) along with his parents and sisters for
the well being of all worlds. The said objects of donation
were part of southern ayaka assemblage.

145 1. . . . Savachara 10 gimhāna . . .
2. . . . dhama sahā bhāyāya . . .
3. . . . chata ahayō matāpi . . .
4. . . tāna hitasughāya

Fragmentary. Meritorious gift of umbrella by . . .dhamā
along with his wife and parents for the well-being of
all in the summer of 10th (regnal) year
[of Yajna Śrī Satakarni (?)]

146 Timhānakasa duhu
tūya Viraṇikāya
dēya dhamam chchatā [II*]

Meritorious gift of umbrella by Viraṃkī daughter of Timhaṇa.

147 1. Namō Bhagavatō Budha[sa] [/ *]
2. .tōda thūpabadama . . .
3. . . kārapitam . . . Sagha
4. kēna . . Mahisakasa [/ *]

Salutations to Lord Buddha. . . . stūpa is got prepared by
Sagha(ka) of Mahisaka?.

Miscellaneous and Fragmentary

Pillar

148 Part of an insitu pillar in STR-V

1. . . . . . . Sātakēna Mahāśēnataena Kumāradatēna Bodhi
kāya cha Viraṃnikā . . .
2. . . . . . . . savalōkahitāya [/ *]

Fragmentary. Refers (to the gift made by) Kumaraadatta,
Mahasēnadata and Bödhikā and Vikaṃnikā for the
happiness and prosperity of all.

Stone bowl of offering

149 Fragments of a stone bowl

. . . . . . Kōtumbudha . . . dēya dhammam [/ *]

Meritorious gift by Kōtumbudha . . . .
Eastern Ayāka

1. [Namo Bhaga]vatō Budhasa [/*] Raño Mādhariputasa Siri Pulumāvisa Sava [chcharē] 10 diva 15 ka pavatakasa
2. [de]vavanija putasa Hāgāna Kanhasirisa samātukasa sapitukasa saputakasa dēya dhama chētiyapaṭṭa sava..

[lōkahita sukhāya] [/*]

From this inscription it is quite apparent that during the reign of Madhari Puta Siri Puḷumavi, almost all the structural activity of the stupa had been completed and only a few alterations like changing the mutilated veneering of the eastern ayāka platform, introduction of Buddha sculptures over the ayāka platform at the cardinal directions and placing of Manushi Buddhas in the sub-cardinal directions in the back drop of non-ornate Vedikā slab, construction of square brick structures numbered V, VI, VIII, IX and X with votive chaityas and enshrining earlier Buddha padas must have been carried out.

(Pl.CXLVII-A and B)
151 **Sētivayikāya bhikhuniya Chuliyā ya dēya dhamma pāyaṅā sasūjikō [I]**
Pious gift of the upright and the crossbars by Chuliyā, a bhikhunī from Sētivayikā (Śrivatiśika).

152 **Bhikuniya Madibhika ..**
mayā dānam [I]
Pious gift of a bhikhunī for the construction of ...

153 ..[bhi] kuni Utaya dānam [I]
Pious gift of Uta the nun.

154 ... ya Samāya ....
.. sa sūchikō dānam [I]
Fragmentary. Records the gift of sūchika by Samā.

155 **Sētivayikāya bhikhuniya Chuliyāya dēya dhama pāyaṅā sasūjikō imām [I]**
Pious gift of the upright and the crossbars by Chuliyā, a bhikhuni from Sētivāyika (Śrivatiśika).

156 **Patigaligāya bhikhuniya Chetiya yāya pāyaṅā sasūjikō dēya dhama [I]**
Meritorious gift of pāyaṅa and sūchika by Chetiya, by a nun from Patigāliya (Pitāṅgalya i.e., Pitalkhūrā).

157 **Patumāyaya duhūtīya Budha Rakhitanikāya dēya dhama [I]**
Meritorious gift of Budharakhtanika, the daughter of Patuma (Padmā).

158 **Mahāgāmilasa pa ..**
Suliya pāyaṅā (sa ... Pious gift of the upright (and the crossbars) by Suliya (Sūrya?), a (monk) from Mahāgrāma.

159 **Bhikhuniya Samikā(yā) dēya**
pāyaṅā dānam [I]
Pious gift of the upright by the nun Samikā

160 **[Ma ] lasa dānam**
Pious gift of Malla
161. *yasa atēvā... ghinikāya dēya..*  
(Pious gift of ...) ghinika a female disciple of ...

162. *Pavayitasa Nāgutarāya*  
*sa deya dhama [I*]  
Meritorious gift of Nagutarā, a monk..

163. *... la Isidinayasa atēvā...*  
*Bhikhuniya Budhāya dēya ..*  
Pious gift .. by Budha, a female disciple of Rishidīna from ...

164. *Navakamikasa Āya Himālayasa atēvāsinīya Malagi*  
*līya Jaliyāya dēya dhama [I*]  
Pious gift of a female disciple Malagi.. of the revered Himalaya, a supervisor of constructions...

(b) *Sūchi* (crossbars):  
Curiously enough none of the suchis are inscribed as they formed the absolute component of the ālamba or pāyaka.

(c) *Ushnisha* (ālambana)-Coping on railing:

165. *Variyāya bhaginiya samanikayā dēya dhamam [/ *]  
Pious gift of sisters and nuns of Vāriya (?)

166. *Dhamarakhitāya misina. bhagi (ni) ..*  
(Pious gift of ...) ..... Dharmarakshita ...

167. *...nikāya dānam [I*]  
Gift of a lady nika

168. *Bhikhuni (ya)*  
(Gift of) nun.

169. 1. *Pisāchakōrām yiyanom Gopamānakasa saputasā*  
2. *sa purisa Yatōnakasa dānam ālambanas [I*]  
Gift of ālambana (ushnīsha) by Yatanaka son of Gopamnaka along with his wife hailing from pisachakokayiyanā (place unidentifiable).

170. *dēya dhama (da)*  
Pious gift.

171. *Māgatukasa cha..*  
Indistinct.

172. *Isirakhitā*  
Rishirakshitā.
173 *Sutatikasa Mitasatinō bhaginīyā bhikhuniyā dātiya dānam [*] *
Gift of Datiya a nun and sister of Mitraswati, proficient in the *sūtras* (cf.104).

II. Vēdikā

(a) Vēdikā slabs

174 *Pōkōṭūrakasa pa (da). [*] *
Gift of a person belonging to Kōtur.

175 *Gahapatinō upāsaka [sa] [Bō] dhigūtasa putasa Bōdhiyasana kasa dāna [*] *
Gift by Bōdhiyasana son of Bōdhigupta, a lay worshipper and a householder.

176 *Āyasa Subhūtinō Vihāro [*] *
Vihāra of Ārya Subhūti (probably Buddha).

177 *Rāhulasa Vihāro [*] *
Vihāra of Rāhula.

178 *Bhagavatō vihāro Kōsabhakutī [*] *
Kōsambhakutī, the monastery of Lord Buddha.

179 *Kōtūrakasa Chadumughusa sabhā[ts]a kasa dānam [*] *
Gift of Chadumugha (Chandramukha) of Kōtura along with his brother.

180 *Yasanakasa ... [Ā]yakō *
(Pious gift of) panel depicting yasana (*vyāsanas*).

181 *Bhikhuniyā Budharakhitāya Kanhāya cha dāna gōlāya cha [*] *
Pious gift of the dome (*aṇḍa*) by Kanha and Budharakshita, a nun.

182 *Ka[nhila] ... putasa Bōdhiyasana kasa dāna [*] *
Pious gift of Bōdhiyasana son of [Kanhila].

183 ...[ate]vāsiniya bhikhuniyā ...
(Pious gift by) ...disciple and nun.

184 *Rāhulasa [*] *
[Dwelling of] Rahula.

185 ... *Kudūrakasa Mahiśēkasa cha dānam patō [*] *
Gift of āyaka pata (drum slab) by Kuduraka and Mahiśēka.

186 * (ha) likani (nō) *
Fragmentary.

187 *Aya Isipālitasa sabhagi...... *
Gift of revered Rishipālita along with his sister.
188 **[U]pāsakasa kadāti yakhasa dānam [l*]**
   Pious gift of lay worshipper Yaskha Kadati.

189 **Pusagutasa samātukasa sabhātukasa dāna [l*]**
   Pious gift of Pushyagupta along with his mother and brother.

190 **Kōtūrakasa Utikasa mātūya [dānam] [l*]**
   (Pious gift of) the mother of Utika from Kōtura.

191 **Bō...kana U (ta) .....sa....to**
   Fragmentary.

192 **Vanavāsikā(ya)......**
   Of Vanavāsi. A fragmentary record.

193 **Sē[ti]vayikāya Chulāya bhikhuniya dāna[m] [l*]**
   Pious gift of Chulā, a nun of Setivayikā (Śrīvatikā).

194 **Gahapatinō Chandaga putasa...**
   [Pious gift] of the son of Chandaga, a householder.

195 **Upāsakasa Sama(na)kasa dāna [l*]**
   Pious gift of Sama(na)ka a lay worshipper.

196 **...[da] mātuyā Isilāya dānam patō [l*]**
   The pious gift of [veneering] slab by Isilā, mother of ....

197 **Dānam patō [l*]**
   Gift of veneering slab.

(b) **Pushpaganāhīs (Pushpagrāhīnī) [Flower receptacles]**

198 **Puphagrahaṇi patō dānam [l*]**
   Gift of flower receptacle (slab).

199 **Dhamakadhikhasa . . saha bhātū .Nāgabudhinī [l*]**
   (Gift of) Nāgabudhi, a religious head (dharmadyaksha) along with his brother....

200 **Na.....**
   Fragmentary.

201 **Kalathibakasa sa...**
   Fragmentary record. (Gift by) Kalathibaka.

202 **....Budhinī ..**
   Fragmentary record. (Gift of) ... Budhi

203 **Puphagahanā dāna [l*]**
   Pious gift of flower receptacle.
204 **Kanhasirikāya pughagahani dāna**
Pious gift of flower receptacle by Kanhasirikā.

205 **Keka...kaya pu..**
Fragmentary record.

206 **Sidham II Dhamakadhikasa Janagōpi(sa) pa (tō) dā (na) dhamsa [I*]**
Success. Pious gift of slab by Janagōpa, a religious head as an act of righteousness. (Pious gift of slab depicting dharma-chakra by Janagōpi, a religious head)

207 **Utaramitāya dāna pughagahani visaya [/ *]**
Pious gift of flower receptacle by Utaramitā hailing from ...Visaya.

208 **Gōlāya dāna.**
Pious gift of dome (aṇḍa) slab.

209 **...Ralasa saputakasa dāna [/ *]**
Pious gift of ...rula along with his son

210 **Pavayita(sa) Jitoya dā( na) pughagahani dasaha [/ *]**
Pious gift of 10 flower receptacles by Jita, a monk.

211 **Vēdakasa upāsakasa [I*]**
(Pious gift) by Vēdakasa, a lay worshipper.

212 **Samaya pughagahani dāna [/ *]**
Pious gift of flower receptacle by Sama.

213 **Ghurikāya la dāya sapu...**
Fragmentary. Not clear.

214 **Jēthasa samanakasa sabhaginikasa sabhāriya ...**
Pious gift of Jyeshta, a monk along with his sister and wife.

215 **[Antēva] siniya Bōdhisamaya dēya dhama mahāchēti bhikuniya Chulaka dārika cha [/ *]**
Meritorious gift of Bōdhisama, the disciple of (name lost) to Chulakadarikā a nun of the mahā-chaitiya.

216 **..dasa dāna [/ *]**
Pious gift of ..dasa. The inscription is succeeded by Nandipada

217 **Dhānyakatikāya Harapusa sa paṭō dāna [/ *]**
Pious gift of slab by Harapushya from Dhānyakaṭaka. The inscription is preceded by a stylized triratna.
218 Himalayas Asabhūtinō mātūya dāna [/*]**
Pious gift of the mother of Asvabhuti from Himalayas.

219 ... kēya dānam [/*]**
Pious gift of ....

220 Dhānyakatakāya.
Dhānyakataka.

221 ya dāna [/*]**
Gift of....

222 Thērana bhayata Mahāmaritinō antēvasinīya Ālakanhikāya piyasutāya cha mahāchētiyāya dēya dhama [/*]**
Meritorious gift of flower receptacle by Ālakanhikā, a disciple of revered elder Mahāmāriti to the great stūpa along with her beloved daughter.

223 Dhamakadhikasa āya Kanha [/*]**
(Pious gift of) revered Kanha, a religious head.

224 Pupha ... Budhirakhitā [/*]**
Pushpa ...Budharakshita

225 Lōhasakasa Upāsakasa [/*]**
(Pious gift of) Lōhasaka, lay worshipper.

226 Maya mahāchētiya .. va (dā) na[/*]**
Pious gift to the mahā-chāitya.

227 ta(ya) puphagahani dānam [/*]**
Pious gift of the flower receptacle by ...(name of the donee lost).

228 Dhānakaṭikāya yakha...
Near Eastern Āyaka,Gift of Yaksha ... from Dhānyakataka.

229 Samāya upāsikāya dānam [/*]**
Pious gift by Sama, a female worshipper.

230 Chidumughamātūya dānam [/*]**
Pious gift by the mother of Chidumuga.

North of Eastern Āyaka

231 Himasiriya dāna [/*]**
Pious gift by Himāsri, a female worshipper.

232 Bhitinakamātūya Ghariyā dāna [/*]**
Pious gift of Ghariya mother of Bhitinaka.
South-west corner

233 *Yakha mātūya patō dānam [*]
   Pious gift of slab by the mother of Yaksha

Kept near Durga Temple

234 ..*Nasa dānam [*]
   Pious gift by ....nasa.

North of Western Āyaka

235 *Kūpana rathikasa dāna [*]
   Pious gift by Kupana, a rāṣṭrika.

236 *Nadasa u[pā]sakasa dānam [*]
   Pious gift of Nanda, a lay worshipper.

(a) Buddha-pādās

Along the front edge

237 *Upāsakasa (Ku)linakasa dēya dhamma pāya (pa) ṭō [*]
   This footprint slab is the meritorious gift by Kulinaka, a lay worshipper.

238 *Thērāna (bhaya) ta Budhatātāna (a) tēvāsisā bha(ya) Sihaka pana(va)dēyakasa dēya dhama pāya paṭ(ō) [*]
   The meritorious gift of footprint slab by revered Simhaka (Sihaka) of the
   mountain branch (parvēyaka = parvatēyaka=Haimavata?) branch (of
   Buddhism) and the disciple of revered elder Budhatrāta.
   Along the slanted edge of the circular ridge

239 *Sidham [*] Namōbhaga......... dēyadhama
   Fragmentary
(IV) (a) Upper drum (Mēdhi) – sculptured veneering

Inscriptions mentioning names of Royal personalities.

240 Rāya Sudara Sātakamni [/*]
   King Sundara Sātakarni.

241 Rāya Mahā Gōvidō [/*]
   King Mahagōvinda.

Jātakās

242 Kumāra a...
   Prince A...(rindama?)

243 Jātakam Sudasōmiyam [/*]
   Sutasōma Jātaka

244 Nāgarāyā Mujulidō [/*]
   Serpent king Mujulinda (Muchilinda).

245 Bōdhisatō Kasarāya [/*]
   (Bodhisatva Kasirāya). Bōdhisattva as king of Benaras.

246 Ranamdō
   Fragmentary.

247 . . . yanō Māyā cha [/*]
   . . . yana and Māyā(dēvi).

Aṇḍa Slabs

248 Nāgarakhitāya samayāya cha tharō....
   (Gift) of string of slabs by Nagarakshita and Samayā.

249 Kūpana Rathikasa dēya dha (ma) [/*]
   Meritorious gift of a Rāshṭrika from Kūpana (or a meritorious gift from Kūpana, a Rāshṭrika).

250 Raghitasa dāna tharō [/*]
   (Gift) of string of slabs by Raghita, (Rakshita).

Chhatradandaṇḍas

251 Sidham [/*] Namō Bhagavatō [/*]
   dēya dhama chchatā
   Success. Salutations to the Lord. Meritorious gift of umbrella.
252 Adhölōka mahācheti . . .
   . . . . i . . . i . . . i
Sacred great chaitya of the nether worlds.

253 Amachiya Vēlinikā[ya]
dēya dhama chhata [/ *]
Meritorious gift of umbrella by Vēlinikā, wife of a minister.

254 1 . . . . gimha pakha 5 . . . .
2 . . . ta Mahāchētiyē
   [Gift of umbrella to the] mahāchaitya during the summer of 5th (regnal)
   year of . . . .

255 . . . Siri-Yana Sātakaṇi
   . . ni Mēhadatasa [/ *]

256 . . . . . Gimhānam . . .
   . . . . . dānam chhata . . .
   . . . a . . .
Gift of umbrella in the summer of . . .

Stone bowl of offerings
257 .. sakāsa cha...
Fragmentary of upāsaka (?) and . . .

258 . . da thūbha
   . . stūpa . .
   Of Jēga.
Fragmentary

260 [Bh]jihkuniyā Chulā(ya)
   By nun Chulā.

261 Yiyaṇā tā(pa)
   Obscure.

Votive Stūpa
262 Halibhichāṇa Gatinokasa bhayā je .. upāsikāya Gātiniya chētia
   kāritam [/ *]
   (This votive) stūpa is got carved by Gātini, a nun and wife of Gatinōka, of
   Halibhichāṇa family (?).
Tenon of a tabha

263 **Kamalalakhiyāya**
By Kamalakakhi (Lakshmi?).

Dwarf pillar shafts found near STR-V

264 1. **Āvesanisa bali...**
2. **Mahānivasa bali...**

1. (Gifts of) Āvesanii.... and 2. Mahanivasa.....

(Gift of) an architect or a foreman. The Inscription on Sānchi Torāṇa (south) gate on the top of the architrave facing the stūpa.

Gift of Ānanda, son of Vasithi (Vasisthi) āveṣanin (rendered as the foreman of artisans) of the Rāja Siri Sātakarni. Ayaka stambhas dedicated by Siddhartha, son of Nāgachandra, both āveṣanins; āvēśa is stated to mean a workshop, atelier.

265 .... **Māhisēkasa upāsakasa**
(Gift of) a monk from Māhisēka ....

Coping member

266 **Dānam..**
Gift by....

267 .... **pataniyāya Sudhamāya saputikā tadāba upāsa (si) . . . .**
Gift of ... (name lost) along with his wife Sudhamā and daughter, a nun .....  

268 **Dhamasiriya paṭa dānam**
The gift of slab by Dharmaśrī.

269 **Nāgaṇuga mātūya**
Gift by the mother of Nāgaṇuga.

270 **Dhāṅakadakāya Yakha . . . .**
Gift of Yaksha ... from Dhānyakaṭaka.
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INSCRIPTIONS


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18. Debala Mitra, *op. cit.*, p. 73, Pl. XXXVIII.


21. A.M. Sastri, ‘Puranas on the Satavahanas: An Archaeological-Historical Perspective’, *The Age of the Satavahanas*, New Delhi, 1999, pp. 3-72. The dates of other dated inscriptions mentioning the Satavahana rulers have also been calibrated on similar lines.
PLATE CXXX

EPIGRAPHICAL DISCOVERIES

Inscriptions on uprights: 1 - 10
Inscriptions on uprights: 1-6 and coping members: 7-12
Inscriptions on coping member: 1 & 2 and lower drum slabs: 3-12
Inscriptions on lower drum slabs: 1-13
Inscriptions on lower drum slabs: 1-11
Inscriptions on flower receptacles: (pushpagrami) 1.10
Inscriptions on cornice: 1, 5, ayaka pillars: 6 & 7 and floor slabs: 8-10
Inscriptions on pedestals of Buddha image: 1-9
Inscription on Buddha pedestal: 1 and Buddhapatas: 2-6
Inscriptions on upper drum slabs: 1-16
Inscriptions on upperdrum slabs: 1-26
Inscriptions on upper drum slabs: 1-8 and umbrella shaft: 9-12
Inscriptions on fragmentary pillars: 1 & 2 and stone bowl: 3
Inscriptions

PLATE CXLIII

A. Dated inscription of king chhimuka Satavahana, upper drum slab
PLATE CXLIV

A. Dated inscription of Siri Pulumāvi, floor slab

B. Dated inscription of Gautamiputra Siri Yajna Sātakarni, umbrella shaft
A. Dated inscription of Vasishthiputra Siri Satakarni, upright
A&B. Dated inscription of Madhariputra Siri Puḷumāvi, lower drum slab, eastern ayaka
A. POTTERY

Excavations were carried out at Raṇamaṇḍala habitation site within the fortified township of Sannati on the banks of river Bhima and at the stūpa site at Kanaganahalli. Since the stūpa site is primarily of religious affinity there was no regular inhabitance except at the monastery. The ceramic repertoire of the time at the stūpa site was frugal in occurrence to understand in detail, the various cultural horizons and assemblages. As such for providing a reasonable ceramic based chronology to other antiquarian evidences, vertical excavation was taken up at the mound at Raṇamaṇḍala.

EXCAVATIONS AT RAṆAMAṆḌALA

Stratigraphy

The fortified area of Raṇamaṇḍala, spread over an area of 80 hectares has revealed a unique chronological scale right from pre-historic times to the early historic times. The mound has yielded various cultural vestiges right from stone tools to terracotta figurines, pottery, coins and brickbats of early historic period on the surface, indicating it to be a highly potential site to affirm the multifaceted early history of south India in general and of Karnataka in particular. The excavations carried out by the Directorate of Archaeology and Museums, Mysore¹, in the southwest corner of the Raṇamaṇḍala area, attest the intense structural activity of early historic period in this area.

With a view to further probe and arriving at a chronological scale, excavation was carried out in about 25 sq m area (4.25 x 4.25 m) located 700 m northeast of the site excavated by the State Department of Archaeology. The trial trench laid in the apex of the approximately 6.50 m mound revealed a stratigraphy of 11 layers (Fig.4, Pl. IIIA) The first six layers to the southeast corner of the trench are highly disturbed by intense pit activity. The stratigraphy from top to bottom up to natural soil (marked as layer 1-11) are as follows:

Layer 1: Nearly 0-20 cm in deposit, this disturbed loose blackish soil forms the humus found mixed with limestone rubbles, stone chips, yield Black ware, Red polished ware, Red ware and Black and Red ware. Russet coated painted ware and rouletted ware also occurred in small quantities.
Layer 2: 35-40 cm in thickness, this stratum is blackish, loose, and is mixed with lime and stone rubbles, brickbats and potsherds. Contemporary to this strata, are two brick walls of which Structure-I runs into south and west sections at the southwest corner of the trench and Structure-II runs in east west orientation and faces south. Structure-I stands to a height of 45 cm and has 5 courses of bricks and is laid in mud mortar. Each brick measures 46x21x9 cm. Structure II having 7 courses stands to a height of 62 cm, is disturbed at places, appears to be part of Structure I and the bricks are similar in measurement. The structures belong to Period IV-Satavahana.

The ceramic fabrics comprises of Black ware, Red polished ware, Red ware and Black and Red ware and rouletted ware.

Layer 3: Slightly loose soil with ashy patches; ceramics encountered in this strata include Red ware, russet-coated painted ware, Black ware, Red polished ware, Red ware and Black and Red ware.

Layer 4: Compact black soil and the nature of soil to crack up to thermal action are evident in the layer. The ceramic typology included all Black ware, Red polished ware, Red ware and Black and Red ware.

The above four layers are of the period IV- Sātavāhana and reflect intensive structural activities and have also yielded many antiquities in addition to the pottery of different fabrics mentioned above. Predominantly, the ceramic typology is in Red ware and most of them are of utilitarian nature classified into large storage jars, medium to small sized, wide mouthed basins, spheroid water pots, lid and typical conical bowls in Red ware, bowls and dishes in Black ware and Black and Red ware.

Layer 5: This is represented by a series of floor activity in three successive stages of (a) compact blackish hard soil rammed with pebbles and pottery; brownish sand patches, patches of charcoal and ash occurring here is a noteworthy feature, (b) layer of compact dark brownish clay rammed with potsherds and (c) compact ashy soil. This stratum reflects a transitional phase of period IIIB-Maurya-Satavahana. The predominant ceramic fabric is all Red ware, and the vessel types included, mild carination of the shoulder, large to medium sized basin, wide mouthed dish-cum-bowls, bowls, dishes and lids of Black and Red ware.

Layer 6: This layer is of Period III.A-Mauryan, represented by compact, hard, ashy brownish soil has clear evidences of habitation activity in the form of a circular hearth of burnt bricks which are of wedge-shape and 15 cm height found in the south-east corner of the trench. The pottery assemblage included three fabrics viz., Red ware, Black and Red ware and
Pottery And Antiquities

Black ware. Nearly 80% of the pottery is of Red ware, followed by Black and Red ware and Black ware. It has some interesting shapes in the form of wide mouthed basins, wide mouthed medium to small sized shoulder carinated vessels, unique collar everted, flanged spheroid pots so that lid can be placed over edge, bowls, dishes, conical bowls, featureless rimmed bowls. The predominant Red ware and lids with a 'U' shaped shallow miniature bowl is an interesting variety. The Black and Red ware and Black ware being of less percentage, the typology is also meagre consisting of bowls and dish variety.

Layer 7: Compact blackish brown soil formation having less percentage of (in addition the strata has) limestone chips. This layer is of Period II.B-Mauryan and megalithic Black and Red ware. The upper levels of this layer yield the Red ware of the Mauryan phase and the lower levels reflect megalithic Black and Red ware. From analysis of the ceramic repertoire it is apparent that the percentage of megalithic Black and Red ware is comparatively less to that of Red ware and so also is Black ware. Here also ceramic typology reflects nearly 50% of Red ware, followed by Black and Red ware and Black ware almost in equal proportions. In the Red ware, the typology revolves around storage jars, medium to small sized vessels, bowls with featureless rims, dishes and lids and lid-cum-bowls. The usual bowls occur in Black and Red ware and Black ware.

Layer 8: Compact blackish brown soil formation; ceramics in profuse dominated by Black and Red ware, Black ware and associated Red ware.

This strata is exclusively of megalithic Period-IIA. Dish and bowls are the dominant variety in the Black and Red ware and fine Black ware which could be termed as a deluxe ware of the period. The associated Red ware is of the usual utilitarian type and comprises of vessels with mild carinated shoulder, wide mouthed vessels, bowls and dishes and lids. Some of lids also act as shallow bowls. In addition, iron slags, nails of iron, etc. have been found.

Layer 9: Similar to 10 in its composition and texture. No cultural assemblage have been found here indicating a hiatus between Period-I and Period-II.

Layer 10: Compact greyish Black soil composed of blackish clay and stone chips of chert material.

This strata yields microliths in the form of bladelets, points, lunate, borer-cum-burin made on inferior material of chalcedony, quartz, quartzite, milky quartz, etc. Pl.CLII) shows Mesolithic phase i.e, Period-I at this place without any other associated cultural material and exhibits, the first evidences of occupation. The context of its occurrence needs further probe for a clear analysis in the light of Palaeolithic tools, both lower and Middle being found on the surface in this region.
**Layer 11:** Natural soil, highly weathered granitic gruss without any cultural vestiges.

From the above it can be observed that pottery forms the characteristic cultural assemblage from Period II represented by megalithic iron age culture to Period IV *i.e.*, Sātavāhana. It is interesting to note that a specific pottery of dull Red ware continues in profusion as the ordinary ceramic assemblage indicating the excessive usage of the same by common man. The characteristic Black and Red ware of the megalithic iron-age culture also continues to occur till the advent of the Mauryans in Period III. A at the place. With the Mauryan occupation, additional ceramic types of polished Red ware and NBP also occur, as reported by the Department of Archaeology, Government of Karnataka. However from the excavations by the Survey, Black and Red ware, Black slipped pottery, polished Red ware were found in association with other antiquities of the Mauryan period like polished stone pestles, grinders along with beads, shell objects, etc. Since the area of excavation was restricted to the lower levels, the cultural artefacts are comparatively less in number.

With the arrival of the Sātavāhanas at the site in addition to the structural activities, the ceramics increase in profusion reflecting upon greater demographic distribution and urban distribution. In addition to the need based ceramics of Red polished ware, dull Red ware, Black and Red-wares, rouletted ware, stamped pottery, russet coated painted ware on selected typology also occur. However, an interesting ware, as noticed in the early levels of the same Sātavāhana levels at Banavāsi - ancient Vaijayanti in the form of chocolate brown ware also occurs but is of inferior quality in typology and make. A gist of cultural assemblages associated with different periods and details of ceramic pattern of the individual period-wise cultural horizon is as under.

<table>
<thead>
<tr>
<th>Cultural Assemblage encountered in different strata</th>
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<td><strong>Period</strong></td>
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<td>PERIOD-IV</td>
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<td>PERIOD-III.B</td>
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<td>PERIOD-II.B</td>
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<td>PERIOD-II.A</td>
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<td>PERIOD-I</td>
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<td>NATURAL SOIL</td>
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The ceramic pattern of these respective periods are comparable to the ceramic assemblage of the corresponding cultural horizons encountered in the earlier excavated sites of Brahmagiri\(^2\) in the Tungabhadra valley, Sātanikōta\(^3\), Nāgarjunakondā\(^4\) in the Krishna valley and Adam\(^5\) in the Deccan. It is interesting to note that Period II at Brahmagiri and early levels of Period-II of Sātanikōta goes with Period II. A of this place.

Period III of Brahmagiri referred to as Andhra culture is akin to Period III. A and III. B of Maurya and Maurya-Sātavāhana assemblage of this place. In the light of above it is imperative to study once again the ceramic assemblage of Brahmagiri, which also has the rock edicts of the Mauryan emperor Aśoka.

The details of ceramic types and shapes from the excavation, are as follows:
PERIOD-II. A MEGALITHIC

Black and Red ware (Fig.84, PL.CXLVIII)

1) Dish of Black and Red ware with a featureless rim, concave neck, of medium fabric showing un-oxidized core, treated with Black slip, comparable with Fig.22 of Pd.II and Maski and Fig.25 and 26 of Pd.III of Maski, pp.66, 74 & 75.

2) Bowl of Black and Red ware with a featureless rim, showing couple of grooves on the shoulder, convex sides, of medium fabric showing un-oxidized core, treated with Black slip.

2 a) Bowl of Black and Red ware with vertical featureless rim, of fine fabric showing oxidized core and treated with slip and polished.

2 b) Bowl of Black and Red ware with almost vertical featureless rim, marginally corrugated side, of fine fabric showing oxidized core and treated with slip. Comparable with F.222 of Pd.II Maski and Fig.25 and 26 Pd.III of Maski (pp.66, 74 & 76) and types 1.1a Fig.25 of Satanikota (p.67).

3) Dish of Black and Red ware with an almost vertical sharpened featureless rim, concave neck, of medium fabric showing un-oxidized core and treated with Black slip. Comparable with type 109, Fig.41, p.129 of Satanikota.

4) Bowl of Black and Red ware with a thickened featureless rim, showing couple of grooves on the shoulder, convex sides, of medium fabric showing un-oxidised core, treated with black slip. Comparable with Figs.25 and 26 of Pd.III of Maski and types 1 and 1a, Fig.23 of Satanikota (p.71).

5) Deep bowl of Black and Red ware with internally thickened rim, vertical sides, of medium fabric showing oxidized core, treated with slip and polished from inside.

6) Shallow bowl of dull Black and Red ware with in-curved bud-shaped rim, of medium fabric showing oxidized core, internally slipped and externally washed.

7) Deep bowl of Black and Red ware with featureless rim, vertical sides, of medium fabric showing oxidized core, externally treated with slip and polished.

7 a) Deep bowl of Black and Red ware with thickened rim, almost vertical sides, of medium fabric showing oxidized core, treated externally with slip and polished. Comparable with Figs.25 and 26 of Pd.III of Maski.

8) Dull Black and Red ware with a vertical featureless rim, convex sides, of medium fabric showing un-oxidized core and treated with wash. Comparable with T-84, Fig.24 (p.233) of Brahmagiri (A.I.No.4).

9) Bowl of dull Black ware with a featureless rim, convex sides, of medium fabric showing un-oxidized smoky core and internally treated with slip and burnished. Comparable with T-87, Fig.24 (p.233) of Brahmagiri (A.I. No.4).
10) Bowl of dull Black and Red ware with almost vertical featureless rim, convex sides of medium fabric showing un-oxidized core, treated with slip.

11) Deep bowl of Black and Red ware with a sharpened featureless rim, convex sides of medium fabric showing oxidized core, internally treated with slip and burnished, externally treated with wash.

12) Deep bowl of Black and Red ware with internally thickened rim, vertical sides, of medium fabric showing oxidized core treated with slip and polished from inside. Types 7, 7a & 8 are comparable with type 17, Fig.28 (p.67) of Satanikota. Types 3, 7 and 12 are comparable with T-80, 81, 82 and 83 Fig.24 (p.233) of Brahmagiri (A.I. No.4)

Black ware (Fig.85)

13) Basin of Black ware with slightly incurved, externally thick collar rim, of medium fabric showing un-oxidized core treated with slip.

14) Basin of Black ware with an incurved featureless rim, and a bluntly carinated girth, of medium fabric showing oxidized core treated with thick slip.

15) Dish of Black ware with an internally bevelled sharpened rim, and a bluntly carinated girth, of coarse fabric showing oxidized core treated with wash.

16) Dish of Black ware, with a featureless rim, convex sides, of medium fabric showing oxidized core treated with Black slip and polished from inside.

16 a) Dish of Black ware with a thick featureless rim, convex side, marked with a groove of coarse fabric showing un-oxidized core treated with wash.

17) Large bowl of Black ware, with an incurved thickened rim, oblique sides of coarse fabric showing un-oxidized core treated with wash.

17 a) Large bowl of Black ware, with an incurved sharpened rim, convex side of coarse fabric showing un-oxidized core treated with wash.

18) Bowl of Black ware with a featureless rim, convex side, of coarse fabric showing oxidized core treated with wash.

18 a) Large bowl of Black ware, with a widening profile, incurved thickened rim, oblique sides, of coarse fabric showing un-oxidized core treated with wash.

19) Bowl of Black ware with incurved featureless rim, convex sides of medium fabric showing oxidized core and internally treated with slip and polished.

20) Bowl of dull Black and Red ware, with almost vertical featureless rim, convex sides of medium fabric showing oxidized core treated with wash.

21) Large bowl of Black ware with a corrugated oblique side, of coarse fabric showing oxidized core treated with thick Black slip.
21 a) Large bowl of Black ware with thickened rim, widening profile, concave side, of coarse fabric showing oxidized core treated with wash.

22) Bowl of Black ware with an internally bevelled rim, tapering sides, of coarse fabric showing oxidized core treated with wash. Maximum number of shapes occur in Period II Maski in russet coated ware.

Red ware / Black ware (Fig.86)

23) Vase of dull Red ware with an out-curved thick collared shaped rim, of medium fabric showing oxidized core and it is micacious, treated with slip on both the surfaces.

24) Vase of Red ware with out-curved beaded rim, concave side, of medium fabric showing oxidized core, treated with wash.

25) Vase of dull Red ware with out-turned thickened featureless rim, of medium fabric showing un-oxidized core, treated externally with slip.

26) Vase of Red ware with an elliptical collared rim, concave neck, angular body of medium fabric showing oxidized core, treated with thick slip.

27) Vase of dull Red ware with an out-curved thick bud-shape rim of medium fabric showing oxidized core and treated with wash.

28) Vase of dull Red ware with an out-curved bud shaped rim of medium fabric showing oxidized core, treated on both the surfaces with slip.

29) Vase of Black ware with an out-turned thickened nail head rim, convex shoulder with a pair of grooves, of fine fabric showing oxidized core, treated with thick slip and polished.

30) Deep bowl of Black ware, with internally thickened and sharp top rim, vertical sides, of fine fabric showing oxidized core, treated with thick slip and burnished.

31) Deep bowl of Black ware with vertical featureless rim, of medium fabric showing oxidized core and treated with slip. Comparable with 4 and 4a (in Black ware) Fig.23C (p.64) of Satanikota.

32) Deep bowl of Black ware, slightly everted rim, of medium fabric showing oxidized core and treated with slip.

33) Deep bowl of Black ware with slightly out-turned featureless rim of medium fabric showing oxidized core and treated with slip. Comparable with 4 and 4a (in Black ware), Fig.22 (p.64) of Satanikota.

34) Shallow bowl of Black ware with almost vertical featureless rim, convex sides, of medium fabric showing oxidized core and treated with slip.

34 a) Bowl of Black ware with slightly in-curved, sharpened rim, convex sides, of medium fabric showing oxidized core, treated with wash.

35) Vase of dull Red ware with an out-curved bud shaped rim of medium
fabric showing oxidized core, treated on both the surfaces with slip.

35a) Vase of dull Red ware with slightly in-curved thick featureless rim and rounded lower part. The illustrated example is of medium fabric showing oxidized core, treated with wash.

36) Vase of dull Red ware with wide mouth flared, thickened rim and, convex neck, of medium fabric showing oxidized core.

37) Vase of dull Red ware with an out-curved nail head rim, concave profile, treated with chocolate colour slip.

37a) Vase of Red ware with an out-turned nail-head rim, concave neck featuring couple of grooves of medium fabric showing un-oxidized core treated with chocolate slip and smoothened.

38) Vase of dull Red ware with out curved, thick, horizontal top, externally diagonally cut rim, with convex neck, of medium fabric showing oxidized core.

39) Vase of dull Red ware with vertical thickened featureless rim, corrugated sides, of medium fabric showing oxidized core.

40) Dish of dull Black ware with vertical thick, featureless rim, with a flat base, of medium fabric showing un-oxidized core treated with slip and polished.

41) Deep bowl of Black ware with vertical thickened rim tapering sides of medium fabric showing un-oxidized core, treated with slip from inside and externally treated with wash.

42) Shallow bowl cum lid of Black ware, with a horizontally flanged rim, tapering sides shows couple of grooves from inside with a flat base, of fine fabric showing oxidized core, treated with thick Black slip and well burnished.

43) Dish of Black ware with vertical featureless rim, slightly concave side, of medium fabric showing oxidized core, treated with slip.

44) Bowl of Black ware with a featureless rim, of medium fabric showing oxidized core and treated with Black slip. Comparable with type 4 and 4a (in Black ware) Fig.22 (p.64) of Satankota.

45) Dish of Black ware with almost vertical featureless rim, convex side, of medium fabric showing un-oxidized core, treated with Black slip.

PERIOD-II.BMegalithic/ Mauryan, Black & Red ware, Red ware, Black ware

Black & Redware / Black / Red ware (Fig.87, Pl.CXLIX)

46) Storage jar of Black and Red ware with an out-turned, externally diagonally cut thick end rim and concave shoulder marked by groove, of medium fabric showing oxidized core, treated with thick slip and well burnished.

47) Vase of dull Red ware with an out-turned beaded rim, marked by a
MEGALITHIC RED WARE / BLACK WARE

Fig. 86
groove from inside concave neck, of coarse fabric showing oxidized core, treated with wash.

47 a) Vase of dull Black ware with an out-turned, thick nail-head rim externally treated with wash.

47 b) Vase of dull Red ware with an out-curved thickened or bud-shaped rim, with a small groove internally, of coarse fabric showing un-oxidized core, treated with slip and there are evidences of husk impression.

48) Vase of dull Red ware with a folded rim, of medium fabric showing oxidized core, treated with slip.

49) Dish of Black ware with an incurved sharpened rim, convex sides, of medium fabric showing oxidized core, treated with slip and burnished.

49 a) Dish of Black ware with a slightly in-curved thick featureless rim, of medium fabric showing oxidized core and treated with thick slip and burnished.

50) Dish of Black ware with an in-curved bud-shaped rim, convex sides and tending towards flat base, of fine fabric showing oxidized core treated with fine Black slip and burnished.

51) Dish of dull Black and Red ware with vertical sharpened rim with series of fine grooves on its mid-portion, of medium fabric and treated with slip and burnished.

52) Deep bowl of dull Black and Red ware with an internally bevelled rim and slightly concave neck and convex body, of medium fabric showing oxidized core, treated with Black slip from inside and wash from outside.

52 a) Deep bowl of dull Black and Red ware with an internally diagonally cut rim, convex sides and of medium fabric showing oxidized core treated internally with Black slip and burnished, externally treated with wash.

52 b) Vase of dull Black and Red ware, internally vertically cut rim, corrugated profile of medium fabric showing oxidized core, the inner surface is treated with Black slip and burnished.

53) Shallow bowl of dull Black and Red ware with internally obliquely cut rim, concave sides treated with slip and polished externally.

54) Dish of dull Black and Red ware with a featureless rim, convex sides, of medium fabric showing oxidized core, internally treated with wash and burnished. Comparable with Fig.25 and 26 of Pd.III of Maski (A.I. pp. 74 and 78)

55) Vase of Red ware with in-curved thickened or round-collared rim with oblique profile, of medium fabric showing oxidized core and treated with slip.

56) Vase of Red ware with an out-turned bud-shaped rim, concave neck, of medium fabric showing un-oxidized core and treated with wash.

56 a) Vase of Red ware with an out-curved thick bud-shape rim, vertical
MEGALITHIC RED WARE / BLACK WARE

Fig. 87
profile, of medium fabric showing oxidised core treated with Red slip and burnished.

57) Vase of dull Red ware with an out-turned bud-shaped rim marked by a groove, concave neck, oblique shoulder, of medium fabric showing oxidized core, externally treated with thick slip, internally washed.

58) Bowl of Black ware with a vertically thickened featureless rim, convex sides, of medium fabric showing oxidized core, treated with slip.

59) Dish of Black ware with a slightly out-turned featureless rim, concave neck, and convex sides, of medium fabric showing oxidized core, treated with slip and burnished.

60) Bowl of Black ware with almost vertical featureless rim, vertical sides of medium fabric showing oxidized core, externally treated with wash and internally treated with slip and polished. Comparable with type 47, 48 of Fig. 24 and type of Fig. 25 of Pd.III of Maski (A.I.No.13, pp.70 and 78).

61) Shallow bowl of Black and Red ware with a sharpened rim, vertical side, of medium fabric showing oxidized core, treated with thick slip and burnished from inside.

62) Bowl of dull Black and Red ware with a vertical sharpened rim, convex sides marked by grooves on the upper half, of medium fabric showing oxidized core. The inner surface is treated with wash and burnished externally.

63) Bowl of Black and Red ware, internally vertical cut thick rim, convex sides, of medium fabric showing oxidized core, treated with Black slip on the surface and burnished from inside.

Black ware/Red ware (Fig.88)

64) Basin of Red ware with an incurved collar averted, internally beaded rim and tapering sides marked with couple of fine grooves on the upper portion.

65) Dish of dull Red ware with a sharpened thick rim, tapering sides marked with a groove, of medium fabric showing an oxidised core, treated with wash.

66) Vase of Red ware with an externally thickened, internally grooved round top rim, concave neck, showing un-oxidized core treated with wash.

67) Bowl of dull Red ware with a flaring clubbed rim, of medium fabric showing oxidized core, treated with wash.

67 a) Bowl of dull Red ware with thick sharpened rim, tapering sides, of coarse fabric treated with wash.

68) Vase of Red ware with a flaring externally thickened nail head rim, of medium fabric showing oxidized core, treated with slip.

69) Lid of dull Red ware with incurved thick featureless rim and horizontally -flanged waist, of medium fabric showing an oxidized core treated with wash.
70) Dish of Black ware with an incurved nail head rim, convex side, of fine fabric showing oxidized core, treated with slip.

71) Dish of Black ware with a vertically thickened featureless rim corrugated profile, of medium fabric showing oxidized core, treated with slip.

72) Bowl of Black ware with vertical featureless rim, convex sides, of fine fabric showing oxidized core, treated with fine Black slip and burnished.

73) Dish of Black ware with an incurved sharpened rim and convex sides, of medium fabric showing oxidized core, treated with slip and burnished.

74) Bowl of Black ware with a vertical thickened featureless rim, convex profile, of medium fabric showing oxidized core treated with wash.

75) Bowl of Black ware with a vertical featureless rim, concave sides with a bluntly carinated waist, of medium fabric showing an un-oxidised core, treated with thick slip.

75 a) Bowl of Black ware with a vertical featureless rim, concave sides with a bluntly carinated waist, of medium fabric showing an un-oxidised core, treated with thick slip, and a thick band in dotted design on the neck portion.

76) Bowl of Red ware with nail head rim, tapering sides, corrugated inner surface, of coarse fabric showing un-oxidized core, treated with slip.

77) Vase of Red ware with out-curved thickened or nail-head rim, oblique shoulder, of medium fabric showing an oxidized core treated with wash.

77 a) Vase of Red ware with an out-turned thickened clubbed rim, oblique shoulder, of medium fabric showing an un-oxidized core, slipped on exterior side.

77 b) Vase of Red ware with an out-turned thickened clubbed rim perched on oblique shoulder, of medium fabric showing an un-oxidized core and a slip on exterior surface. Type 77 along with its variants is comparable with T-189 and 190, Fig.30 and 233 of Brahmagiri (A.I.No.4).

78) Vase of Red ware with a horizontally splayed-out beaded rim, of fine fabric showing an oxidized core treated with Red slip and well polished.

79) Vase of Red ware with an out-turned nail-head rim, concave neck, of medium fabric showing an oxidized core treated with slip.

80) Vase of Red ware with an out-curved thickened rim, concave sides, of medium fabric showing an oxidized core and treated with wash.

81) Vase of dull Black ware with a splayed out featureless rim, concave neck of coarse fabric showing an un-oxidized core showing treated with wash.

82) Vase of Black ware with an almost vertical featureless rim, of medium fabric showing oxidized core, treated with thick Black slip and polished.
83) Dish of Black ware with incurved thickened rim, convex sides, of fine fabric showing oxidized core, treated with fine Black slip and burnished for glaze.

84) Bowl of Black ware with almost vertical featureless rim, concave side, of medium fabric showing oxidized core, treated with Black slip.

85) Vase of Black ware with an almost vertical featureless rim, of medium fabric showing oxidized core, treated with thick Black slip and polished, treated with wash.

86) Dish of Black ware with an incurved featureless rim, convex sides, of medium fabric showing oxidized core, treated with slip and burnished.

**PERIOD-III.A: MAURYAN** (Fig.89, Pl.CL-A)

**Red ware/Black & Red/Black ware**

87) Basin of dull Red ware with beaded, internally collared rim almost vertical sides marked by a groove, of medium fabric showing an oxidized core treated with slip and smoothened.

88) Vase of dull Red ware with an out-turned bud shaped rim, concave profile, of coarse fabric showing un-oxidized smoky core, self slipped.

89) Vase of dull Red ware with an out-curved thickened rim and straight sides, marked with grooves, of coarse fabric showing an oxidized core, treated with wash.

90) Vase of Red ware with a thick horizontally flared out rim parched on oblique shoulder, of coarse fabric showing un-oxidized core treated with wash.

91) Vase of Red ware with an out-curved round rim, drooping externally, concave neck marked by a groove, oblique shoulder, of medium fabric showing an oxidized core, treated externally with fine Red slip.

91 a) Vase of Red ware with an everted rim, externally drooping, parched on oblique shoulder, of medium fabric showing an oxidized core treated with Red slip.

91-b) Vase of Red ware with an out-curved thickened rim marked with a couple of grooves, oblique shoulder, of medium fabric showing an oxidized core treated with slip.

92) Vase of Red ware with collared rim internally, cordoned externally and concave neck, of medium fabric showing an oxidized core and treated with Red slip.

93) Vase of Red ware with a horizontally splayed-out rim, parched on oblique shoulder, of coarse fabric showing un-oxidized core treated with wash.

94) Vase of Red ware with a vertical collared rim, and prominent, cordoned externally, of medium fabric showing an oxidized core treated with tan slip.

95) Lid of Red ware with, out curved top and thick horizontally flanged waist, of medium coarse fabric and rounded lower part is treated with wash.
MEGALITHIC BLACK WARE / RED WARE

Fig. 88
96) Bowl of Red ware with internally bevelled rim, convex sides, of medium fabric showing an oxidized core treated with Black slip from inside.

97) Bowl of Red ware with internally thickened featureless rim, tapering sides, of coarse fabric showing un-oxidized core, gritty external surface, internally treated with wash.

98) Bowl of Red ware with a splayed out rim, vertical sides, and lower grit with carinated sides tending to a flat base.

99) Vase of Red ware with an out-turned featureless rim, concave sides, of coarse fabric showing un-oxidized core treated with wash.

100) Vase of dull Red ware with an out curve thick collared rim, concave sides, of coarse fabric showing an oxidized core treated with wash.

101) Vase of Red ware with an out-turned grooved rim, concave sides, of fine fabric treated with fine Red slip and polished.

102) Vase of Red ware with an out-curved thick, bud shaped rim, concave neck and marked with a couple of grooves at the lower end, of medium fabric showing an oxidized core treated with thin Red slip.

103) Bowl of Red ware with a featureless rim corrugated tapering sides, of medium fabric showing an oxidized core and rough surface treated with Red slip.

104) Deep bowl of Red ware with an internally bevelled rim, convex lower part tending towards flat base, of coarse fabric showing un-oxidized core treated with wash.

105) Large bowl of Red ware with an nail head rim, vertical neck, convex sides, of fine fabric showing an oxidized core treated with Red slip.

106) Vase of dull Black ware with an out-turned beaded rim marked internally by a ridge, vertical sides, of coarse fabric showing un-oxidized core treated with slip.

107) Vase of dull Black ware with an out-turned thickened featureless rim, concave neck, of medium fabric showing an oxidized core treated with dull Black slip externally.

108) Carinated bowl of dull Black ware with a featureless rim, oblique shoulder marked with a groove at the junction, of fine fabric showing an oxidized core treated with slip and burnished above Black ware, and treated with Black slip and rough inner surface.

108 a) Carinated bowl of dull Black and Red ware with a featureless rim, oblique shoulder marked with a groove at the junction, of fine fabric showing an oxidized core treated with slip and burnished.

109) Bowl of Black and Red ware with an internally bevelled rim, convex sides, the illustrated example is, of fine fabric showing an oxidized core treated with slip and internally burnished.
MAURYAN PERIOD III.A; RED WARE, BLACK AND RED WARE/ BLACK WARE

Fig. 89
110) Lid of Red ware with thick horizontally flanged waist, tapering sides of medium coarse fabric treated with wash.

111) Vase of dull Black and Red ware with an out-turned thickened rim, concave neck of coarse fabric showing un-oxidized core treated with slip.

PERIOD-III.B : MAURYA-SÄTAVÄHANA

Red ware (Fig.90, Pl.CL-B)

112) Basin of Red ware with an in-curved thickened or clubbed rim, of coarse fabric showing an oxidized core treated with wash.

113) Basin of Red ware with an out-curved beaded rim, with a prominent groove inside, convex sides, of medium fabric showing an oxidized core treated with Red slip.

114) Jar of Red ware with a vertically thickened featureless rim, of medium fabric showing an oxidized core treated with thick Red slip.

115) Vase of Red ware with clubbed rim tapering sides, of medium fabric showing an oxidized core, treated with thin Red slip.

116) Vase of Red ware with an out-curved beaded rim, almost vertical sides of coarse fabric showing an oxidized core treated with wash.

116 a) Vase of Red ware with out-turned beaded rim and almost vertical side, of medium fabric showing an oxidized core and treated with slip.

116 b) Vase of Red ware with an out-curved bud-shaped, clubbed rim showing a prominent groove from inside, almost vertical sides, of medium fabric showing an oxidized core treated with slip.

116 c) Vase of Red ware with an out-curved thickened rim, concave sides, of medium fabric showing an oxidized core, treated with slip.

117) Vase of Red ware with an out-curved beaded rim, almost vertical sides, of medium fabric showing an oxidized core treated with Red slip.

118) Basin of drab ware with a thick splayed out rim, oblique shoulder, of coarse fabric showing un-oxidized core treated with wash.

119) Vase of Red ware with a splayed-out featureless rim, corrugated neck of medium fabric showing an oxidized core treated with tan colour slip.

119a) Vase of drab ware with out-curved bud shaped rim, obliquely cut externally and marked by an internal ridge, concave sides, of medium fabric showing an oxidized core treated with thick Red slip.

119 b) Vase of Red ware with splayed out, externally thickened rim, corrugated neck of medium fabric showing an oxidized core treated with tan colour slip.

119 c) Vase of Red ware with a splayed out, externally thickened rim, concave neck, oblique shoulder, of medium fabric showing an oxidized core treated with slip.
MAURYA / SĀTAVĀHANA PERIOD III; RED WARE

Fig. 90
120) Lid-cum-bowl of Red ware with a vertically thickened rim, and a flanged waist, of medium fabric showing an oxidized core treated with slip.

121) Lid-cum-bowl, Red ware with a vertically thickened featureless rim, with an external flanged near flat base, of medium fabric showing an oxidized core treated with slip.

122) Vase of Red ware with an out-turned beaded rim with a groove internally, of coarse fabric showing un-oxidized smoky core.

123) Vase of Red ware with an out-curved bud-shaped rim showing a groove from inside, almost vertical sides, of medium fabric showing an oxidized core treated with slip.

124) Vase of Red ware with a nail-head rim and externally thick clubbed rim, of medium fabric showing an oxidized core treated with thick Red slip and polished.

125) Vase of Red ware with an out-curved nail head rim, almost vertical sides, of medium fabric showing an oxidized core treated with Red slip.

126) Vase of Red ware with an out-curved bud-shaped rim, externally drooping and showing a prominent groove from inside, almost vertical sides, of medium fabric showing an oxidized core treated with slip.

127) Vase of Red ware with an out-turned beaded rim, concave neck tending towards vertical sides, of medium fabric showing an oxidized core treated with Red slip.

127 a) Vase of Red ware with an out-curved bud-shaped rim, concave sides, of medium fabric showing an oxidized core treated with Red slip.

Black and Red ware (Fig.91)

128) Dish of Black and Red ware with almost a vertical featureless rim, concave neck with an almost cylindrical body tending towards flat body, of medium fabric showing oxidized core treated with Black slip and burnished.

129) Dish of Black and Red ware with an internally bevelled rim, concave neck, of medium fabric showing oxidized core treated with Black slip and burnished, almost vertical sides tending to a flat base.

130) Bowl of Black and Red ware with internally bevelled rim, convex body, of coarse fabric showing oxidized core treated with wash.

131) Bowl of Black and Red ware with an internally thickened featureless rim, almost vertical sides, of medium fabric showing un-oxidized smoky core treated with slip and polished.

132) Shallow bowl of Black and Red ware with a featureless rim, convex sides, of coarse fabric showing un-oxidized smoky core and slipped.

133) Bowl of Black and Red ware with a vertical knife edge rim, convex profile, of medium fabric showing un-oxidized smoky core treated with wash.

134) Large bowl of Black and Red ware, marked with a couple of grooves on
the outer rim portion of medium fabric showing oxidized core treated with slip.

134 a) Bowl of Black and Red ware with an in-curved thickened rim, concave sides, of medium fabric showing oxidized core treated with slip.

135) Bowl of Black and Red ware with internally bevelled rim, tapering sides, of medium fabric showing oxidized core treated with wash.

135 a) Bowl of Black and Red ware with an internally bevelled rim tapering sides, of medium fabric showing oxidized core treated with wash.

135 b) Deep bowl of Black ware with a bevelled rim, tapering sides, of medium fabric showing oxidized core treated with wash.

136) Bowl of Black and Red ware with an almost vertical thickened featureless rim, concave sides of medium fabric showing oxidized core treated with wash.

PERIOD-IV, SĀTAVĀHANA

Red ware (Fig.92 Pl. CLI-A)

137) Basin of Red ware with a clubbed rim which is further distinguished by grooves on the body, of medium fabric showing oxidized core, it is treated with slip externally, as well as up to its inner rim.

138) Basin of Red ware, with a vertical thickened round rim almost vertical shoulders, of medium fabric showing oxidized core treated with thick slip and polished.

139) Basin of Red ware with a thickened out-turned beaded rim, convex sides, of medium fabric showing incomplete oxidized core, self slipped.

140) Basin of Red ware, with a nail-head rim and a groove on top, and almost straight sides, of medium fabric showing an oxidized core treated with Red slip.

141) Basin of Red ware with an out curved thickened rim, and a prominent groove, convex body of medium fabric showing oxidized core and treated with slip.

141 a) Basin of Red ware with a thickened rim, corrugated sides, of coarse fabric showing un-oxidized core, treated with slip.

141 b) Basin of Red ware with an out-turned thickened round rim, corrugated sides of coarse fabric showing un-oxidized core, rough inner surface.

141 c) Basin of Red ware with an out-turned thickened rim, corrugated convex sides, of medium fabric showing un-oxidized core and treated with wash.

142) Basin of Red ware with an out-turned thickened round rim, corrugated sides, of coarse fabric showing un-oxidized core, rough inner surface.

143) Basin of Red ware with an out-turned beaked rim, convex sides, of medium fabric showing oxidized core, treated with slip.

Red ware (Fig.93)

144) Vase of dull Red ware with an out-turned under-cut rim, concave
SĀTAVĀHANA PERIOD IV; RED WARE

Fig. 92
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neck, of coarse fabric, showing un-oxidized core, self slipped.

145) Vase of Red ware with out-curved externally grooved rim, concave sides, of medium fabric showing oxidized core and treated with slip.

145 a) Vase of Red ware with an externally out-turned groove and also grooved internal rim, concave neck distinguished by a groove at the neck, of medium fabric showing an oxidized core and treated with slip on both the surfaces.

145 b) Vase of Red ware with out-curved and externally flanged rim, concave neck, of medium fabric showing un-oxidized core, treated with tan slip and polished.

145 c) Vase of Red ware with a vertical thick rim externally, marked with a stud on the outer side, of medium fabric showing un-oxidized core.

146) Vase of Red ware with an out-turned bud-shaped rim, concave sides, of medium fabric showing oxidized core, treated with slip.

147) Basin of Red ware, with an out-turned under-cut grooved rim, convex side, of medium fabric showing oxidized core and treated with slip.

148) Basin of Red ware with a nail head rim and a thick prominent groove on neck externally, convex side, of medium fabric treated with thick tan slip on both the surfaces.

148 a) Basin of Red ware with a thick nail-head rim with a prominent groove externally just under the rim, convex body, of medium fabric, showing oxidized core, treated with tan slip.

149) Basin of dull Red ware with an out-turned thickened rim, concave neck with convex body having a series of grooves, of medium fabric showing oxidized core, treated with slip.

150) Vase of Red ware with an out-turned thickened round rim, almost vertical sides, of fine fabric showing oxidized core treated with brick Red slip and polished.

151) Vase of Red ware with out-curved thickened rim, marked with prominent groove, concave neck, of medium fabric showing oxidized core and treated with wash.

152) Vase of Red ware with a splayed out thick round rim, concave neck, of fine fabric showing oxidized core, treated with slip.

153) Vase of Red ware, with an out-curved under-cut rim, concave sides with grooves, of medium fabric showing an un-oxidized core and treated with thick Red slip and polished.

154) Vase of Red ware with an out-turned round rim and a groove internally, concave neck, of medium fabric showing oxidized core and treated with slip.

154 a) Vase of Red ware with nail head rim, concave side, of medium fabric showing oxidized core treated with slip.

154 b) Vase of Red ware with an out-turned externally nail head rim, concave neck, with a couple of grooves on
SĀTAVĀHANA PERIOD IV; RED WARE

Fig. 93
the shoulder, of medium fabric showing oxidized core and treated with slip and polished.

154 c) Vase of Red ware with an beaded rim, concave sides, of medium fabric, showing oxidized core, both the surfaces are treated with slip and polished.

155) Vase of Red ware with an externally flared thickened rim, oblique sides, of fine fabric, showing oxidized core, treated with Red slip and polished.

156) Vase of Red ware with a thickened out-turned rim with triangular top, oblique shoulder, of fine fabric showing un-oxidized core, treated with slip and polished.

157) Vase of Red ware with an out-curved round rim, almost vertical side, of medium fabric showing an oxidized core, treated with Red slip.

158) Vase of Red ware with an out-curved thickened rim with grooves inside and almost vertical side, of fine fabric treated with thick slip and polished.

Red ware (Fig.94)

159) Dish of Red ware with a vertical sharpened rim, grooved shoulder, of medium fabric showing an oxidized core and treated with Red slip.

160) Basin of Red ware with a vertically thick rounded rim, convex side, of fine fabric showing an oxidized core, treated with fine Red slip and smoothened.

161) Basin of Red ware with a thickened, incurved rim. There are a couple of grooves on the external surface with convex sides, of medium fabric showing an oxidized core treated with Red slip.

162) Bowl of dull Red ware with an out-turned nail-head rim, convex sides, of coarse fabric showing un-oxidized core, treated with wash.

163) Dish of Red ware with a vertical featureless rim, grooved shoulder almost flat base, of medium fabric showing un-oxidized core, it is treated with slip.

164) Dish of Black and Red ware with an incurved thickened rim, with convex side, of fine fabric showing oxidized core treated with fine slip and slightly polished.

165) Bowl of Red ware with internally thickened rim, convex sides, of medium fabric showing an oxidized core treated with brick Red slip and polished.

166) Bowl of dull Red ware with a vertically thickened rim, distinguished with a groove, convex sides, of medium fabric showing an oxidized core and treated with wash.

167) Carinated bowl of Red ware with a splayed out rim, of medium fabric marked with corrugation inside on the lower half, showing sting cut flat base.

168) Miniature vase of dull Red ware, spherical body and button base, of medium fabric showing un-oxidized core, treated with slip.
169) Vase of Red ware, with a concave neck marked with a raised groove and globular body, of fine fabric showing an oxidized core and treated with slip and polished.

170) Carinated miniature vase of Red ware with out-turned thickened rim with a series of striation marks, of medium fabric showing oxidized core.

171) Miniature vase of dull Red ware with vertical featureless rim, globular body, of medium fabric treated with wash.

171 a) Miniature vase of dull Red ware with vertical featureless rim, globular body, of medium fabric treated with wash. Comparable with Fig.26, type 15 of Pd.III of Maski.

172) Shallow bowl of Red ware with a featureless rim, tapering body tending towards flat base, showing a series of striation marks internally, of medium fabric treated with wash.

173) Dish of dull Red ware with a featureless rim, oblique sides tending towards the flat base, of medium fabric showing un-oxidized core and treated with chocolate slip.

174) Shallow bowl of Red ware, with internally thickened rim oblique sides, of medium fabric showing oxidized core treated with thick slip on both surfaces.

175) Bowl of Red ware with a thick nail-head rim, convex body, externally grooved, of medium fabric showing oxidized core, treated with thick slip.

176) Bowl of dull Red ware with a featureless rim and tapering sides to a flat string-cut button base, of medium fabric and treated with thick slip, particularly from inside.

176 a) Bowl of dull Red ware with a slightly thick featureless rim and tapering sides to a flat string-cut button base, of medium fabric and treated with thick slip, particularly from inside.

176 b) Bowl of dull Red ware with a featureless rim and tapering sides to a flat string-cut button base, of medium fabric and treated with thick slip, particularly from inside.

176 c) Bowl of dull Red ware with a featureless rim and tapering sides, thick section, flat string-cut button base, of medium fabric and treated with thick slip, particularly from inside.

176 d) Bowl of Red ware with a featureless rim, tapering sides marked with corrugation inside in medium fabric.

176 e) Thick bowl of Red ware with a featureless rim, tapering sides marked with corrugation inside in medium fabric.

176 f) Bowl of Red ware, with sharpened rim and thick tapering sides, of coarse fabric. Differs in having weakly corrugated sides and prominent string-cut base.

177) Vase of Red ware with out-curved rim, slightly concave neck, of fine fabric showing an oxidized core and treated with Red slip and polished.

178) Vase of Red ware with an out-turned rim, concave neck inclined to globular body, of fine fabric showing...
SĀTAVĀHANA PERIOD IV; RED WARE

Fig. 94
SĀTAVĀHANA PERIOD IV; RED WARE
Pottery And Antiquities

an oxidized core, treated with Red slip and polished.

178 a) Vase of Red ware with an out-curved rim, slightly concave neck, of fine fabric showing an oxidized core, treated with Red slip and polished.

178 b) Vase of Red ware with an out-curved thick collared rim, concave neck, of fine fabric showing an oxidized core, treated with Red slip and polished.

179) Vase of Red ware with an in-curved, internally thickened rim, concave neck, of medium fabric showing oxidized core and treated with wash. Types 177-179 comparable with Fig.21, type B(iv) 4, 49, 9 and 10 of Pd.II of Maski.

Red ware (Fig.95)

180) Storage jar of Red ware with thickened out-turned or clubbed rim, convex sides, of medium fabric, showing un-oxidized core and treated with thick Red slip.

180 a) Storage jar of dull Red ware with thickened, round rim, convex sides, of medium fabric showing un-oxidized core and treated with wash.

181) Storage jar of dull Red ware with vertical thickened nail-head rim and pitted on oblique sides of coarse fabric, showing un-oxidized core. It is treated with thin Red slip on its surface.

182) Storage jar of dull Red ware with an externally thickened beaded rim with a pair of grooves inside, thin concave sides, of medium fabric showing an oxidized core and the external surface is treated with slip and polished, and is internally washed.

183) Storage jar of Red ware with a thickened-out-turned or clubbed rim, oblique shoulder, of fine fabric showing an oxidised core showing fully oxidized Red core. It is treated with thick brick Red slip and burnished, hence, the glaze.

184) Storage jar of Red ware with thickened out-curved beaded rim, oblique shoulder, of fine fabric showing fully oxidized Red core. It is treated with thick brick Red slip.

Period –III-B, Black and Red ware and Black ware (Fig.96)

185) Bowl of Black and Red ware with an internally mildly collared thickened rim, convex sides, of fine fabric showing an oxidized core, treated with slip and well burnished.

186) Dish of Black and Red ware with a vertically featureless rim, carinated with a low grit of medium fabric showing un-oxidized core and treated with Black slip.

187) Dish of Black and Red ware with a vertical beaded rim, round sides tending towards flat base, of medium fabric showing un-oxidized core and treated with Black slip.

187 a) Dish of Black and Red ware with a vertically featureless rim, carinated with a low grit, of medium fabric showing un-oxidized core and treated with Black slip.

187 b) Dish of dull Black and Red ware with a slightly out curved thick rim, externally grooved neck, convex sides, of medium fabric showing an oxidized core and treated with thick slip and polished from inside.
188) Dish of Black and Red ware with a vertical featureless rim, and sagger base, of medium fabric showing an oxidized core treated with slip. 187 (along with its variants) and 188 are comparable with types 112-14, Fig. 35 (p.117) of Satanikota.

189) Bowl of dull Black and Red ware with a nearly vertical thick - end rim, of medium fabric showing an oxidized core and treated with wash.

189 a) Bowl of dull Black and Red ware, with vertical featureless rim, convex sides, of medium fabric showing un-oxidized core.

189 b) Bowl of dull Black and Red ware, with incurved featureless rim, groove inside, convex sides of medium fabric showing un-oxidized core.

189 c) Bowl of dull Black and Red ware with an thickened rim, convex sides, of medium fabric showing an oxidized core treated with wash.

190) Shallow bowl of dull Black and Red ware with wide mouthed conical shape with featureless rim, roughly corrugated tapering sides, of medium fabric showing an oxidized Red core and treated with a thick Black slip inside.

191) Vase of dull Black ware with a thick out-turned beaded rim, concave sides, of medium fabric showing an oxidized core, treated with thick Black slip, evidence of grit on both the surfaces.

192) Vase of dull Black and Red ware, incurved nail head rim convex sides, of medium fabric showing an incomplete oxidized core, treated with slip and smoothened from inside.

193) Dish of Black ware with an in-curved featureless rim, convex sides tapering to flat base, of medium fabric showing un-oxidized core. It is treated with thick slip and burnished.

194) Bowl of Black ware with nail-head rim with oblique sides, and a groove on external part, of medium fabric showing an incomplete oxidized core, treated with slip and smoothened from inside.

194 a) Bowl of dull Black ware with thickened internally, incurved rim, convex sides with Black slip and smoothened.

195) Dish of Black and Red ware with a vertically featureless rim, with a low grit, of medium fabric showing un-oxidized core and treated with black slip.

196) Dish of Black and Red ware with an incurved rim, concave side, of medium fabric showing un-oxidized core and treated with Black slip.

197) Dish of Black and Red ware with an incurved rim, vertical side, carinated with a low grit, of medium fabric showing un-oxidized core and treated with wash.

198) Dish of dull Black and Red ware, incurved nail head rim convex sides, of medium fabric showing an incomplete oxidized core, treated with slip and smoothened from inside.
Bowl of dull Black ware with vertical featureless rim, of coarse fabric showing an un-oxidized core. It is treated with slip on both the sides.

Shallow bowl of Black ware with a vertical featureless rim, convex sides, of medium fabric showing an oxidized core. It is treated with fine slip and burnished.

Deep bowl of Black ware with a thick vertical featureless rim, slightly convex lower sides, of medium fabric showing an oxidized core and treated with thick Red slip and polished from inside.

Wide mouthed bowl of Black ware, thickened incurved rim with oblique side, of medium fabric, showing un-oxidized core.

Bowl of Black ware with a featureless rim distinguished with a groove on the neck portion, and wider at lower part, convex sides of medium fabric showing un-oxidized core. It is treated with thick black slip and burnished from both sides.

Bowl of dull Black ware with a horizontal flaring square end rim, rounded lower part of medium coarse fabric showing un-oxidized core and treated with black slip.

**Pottery From The Mahāstūpa Site, Kanaganahalli**

The site being intensely religious, except for vessels of storage and a few basic types of utility, the ceramic assemblage of this site is meagre. Most of them are storage jars and wide mouthed basins, bowls, lids, dishes and other vessels of water storage in ordinary Red ware followed by a few sherds of grey ware. Occasionally, sherds of Black and Red ware, Black slipped pottery have also been found. A single sherd of NBP is found from the foundation pits of one of the tabhas along with a silver punch marked coin. The following is the typology of the ceramics from this site.

**Red ware (Fig.97)**

1) Storage vessel of Red ware with an out-turned thickened or clubbed rim marked internally by a ridge, oblique shoulder which is further distinguished by a raised groove, of fine to medium fabric showing an oxidized core and externally treated with Red slip and polished. Comparable with 113 of Fig.41, p.137 of Satankota.

1 a) Storage vessel of Red ware, with an out-turned thickened rim, convex sides, of medium fabric showing an oxidized core and treated with a Red slip.

2) Storage vessel of dull Red ware, concave neck with oblique shoulder, of medium fabric showing an oxidized core and a series of striation marks on both the surfaces.

3) Basin of grey ware with an out-turned thickened or clubbed rim, with a pair of grooves, vertical shoulder, of medium fabric showing an oxidized core and gritty surface.

3 a) Basin of Red ware with a rounded rim, convex sides, treated with fine Red slip on both sides and polished.
SĀTAVĀHANA PERIOD IV; BLACK AND RED WARE / BLACK WARE

Fig. 96
VIHARA COMPLEX PERIOD IV; RED WARE

Fig. 97
3 b) Basin of Red ware, out curved rim, short neck and oblique shoulders formed with raised groove, of medium fabric showing oxidized core and treated with fine slip on exterior surface and polished.

3 c) Basin of dull Red ware with rounded-shaped rim, convex sides, externally grooved body, of medium fabric showing highly oxidized section and the lower half is treated with Red slip whereas the upper is treated with wash.

3 d) Basin of Red ware with an out-turned thickened or clubbed rim, vertical shoulder of medium fabric showing oxidized core, and treated with a thick coat of Red slip on the outer surface as well as on its inner rim portion.

Red ware/ Black ware (Fig.98)

4) Basin of Red ware with a thick round rim, vertical sides, of friable fabric showing oxidized core and brittle surface.

5) Carinated bowl of dull Black and Red ware with slightly out-turned thick featureless rim, slightly concave neck with corrugated base of medium fabric and the inner surface is treated with thick slip and smoothened.

6) Bowl of Black and Red ware with an internally bevelled rim, convex sides, of medium fabric treated with slip on both sides.

7) Bowl of Red ware with an incurved thickened rim, slightly carinated profile, showing oxidized core, of medium fabric, externally treated with wash whereas internally treated with thick Black-slip and burnished.

8) Dish of Red ware with vertical featureless rim, flat base, of medium fabric showing oxidized core and treated with slip. The lower portion is worn off.

9) Bowl of dull Red ware with a featureless rim, of coarse fabric treated with wash.

10) Bowl of Red ware with vertical featureless rim, convex sides, of medium fabric showing an oxidized core and treated with wash.

11) Deep bowl of dull Black ware with an internally thickened rim, rounded profile, shows couple of grooves with un-oxidised core, it is treated with wash.

12) Dish of Red ware with thick, vertically featureless rim, grooved shoulder and the inner surface treated with lime wash.

13) Bowl of dull Red ware with a featureless rim, marginally tapering sides, coarse fabric and treated with wash.

14) Carinated bowl of dull Black ware with a nail head rim, concave neck with medium fabric showing un-oxidized core, and treated with wash.

14 a) Lid-cum-bowl of Red ware with vertical, externally thickened rim, round bottom, of medium fabric showing oxidized core and treated with wash.

15) Dish of Black and Red ware with a thickened in-curved rim, convex
sides with a marginal carination, of medium fabric showing oxidized core.

15 a) Dish of Black and Red ware with an in-curved rim, convex side, of medium fabric treated with slip, and burnished internally.

16) Dish of dull Black ware with vertical oval-collared rim, convex side, of medium fabric showing an oxidized core and treated with thick wash.

17) Dish of Black ware with an almost vertical thick featureless rim, of medium fabric, treated with thick slip and internally polished.

18) Shallow dish of dull Black ware with bud shaped rim, oblique profile of medium fabric, showing an oxidized core and treated with wash.

19) Bowl of Red ware with vertical featureless rim, convex sides, tending towards round base, of medium fabric showing oxidized core and treated with slip.

19 a) Bowl of dull Black ware with featureless rim, round base of coarse fabric and treated with thick wash.

20) Shallow bowl of Red ware with vertical featureless rim, flat base, of medium fabric showing oxidized core and treated with slip. These types in general are comparable with pottery illustrated in Fig.33, p.104 of Satanikota.

Red ware (Fig.99)

21) Vase of Red ware, vertically flanged rim with concave shoulder, of medium fabric showing un-oxidized core and treated with red slip.

21 a) Vase of Red ware, vertical, externally flanged rim, concave shoulder, of medium fabric showing un-oxidized core and treated with red slip.

21 b) Vase of Red ware with a vertical externally flanged rim, concave neck, oblique shoulder, marked with a series of grooves, of fine fabric showing oxidized core treated with thick red slip and burnished.

21 c) Vase of Red ware with a vertical externally flanged rim, concave neck, of fine fabric showing oxidized core, treated with thick Red slip and burnished.

22) Vase of dull Red ware with a splayed-out nail-head rim, concave neck, of medium fabric with un-oxidised core treated with a wash.

23) Vase of Red ware with a vertical, externally flanged rim with concave shoulder, of fine fabric showing oxidized core, treated with thick red slip and burnished.

24) Vase of Red ware with an externally out-turned rounded rim with a prominent groove inside, concave neck, of fine fabric showing oxidized core, treated with thick red slip and burnished.

24 a) Vase of Red ware with out-curved beaded rim, concave neck, of fine fabric showing oxidized core, treated with thick red slip and burnished.

24 b) Vase of Red ware with out-curved rim, concave neck with grooves, of fine fabric showing oxidized core, treated with thick red slip burnedished.
SĀTAVĀHANA; RED WARE / BLACK WARE

Fig. 98
24 c) Vase of Red ware with a vertical externally elliptical-collared rim and a concave neck, of medium fabric showing an oxidized core, treated with thick slip.

24 d) Vase of Red ware, with thick out-turned rim, concave neck, of medium fabric treated with red slip and polished.

24 e) Vase of Red ware, with vertically bud shape rim, concave neck, of medium fabric showing an oxidized core, treated with thick slip.

24 f) Vase of Red ware, with thick out-turned featureless rim, and a prominent groove inside, concave neck of medium fabric and treated with red slip.

24 g) Vase of Red ware with thickened out-turned grooved rim and concave neck of medium fabric showing an oxidized core and treated with thick slip.

24 h) Vase of Red ware with externally thickened round rim, concave neck, of medium fabric with un-oxidized core and grooves on the shoulder and treated with slip.

25) Vase of dull Red ware with splayed-out nail head rim, of medium fabric showing oxidized core and treated with slip.

25 a) Vase of dull Red ware with a flared, externally thickened rim, concave neck, of medium fabric showing an oxidized core and treated with red slip.

26) Vase of Red ware with out-turned thickened nail-head rim, concave neck, of fine fabric showing oxidized core, treated with slip and burnished.

27) Bowl of Red ware with featureless rim, tapering corrugated sides, flat button base of medium fabric with oxidized core and treated with wash.

28) Bowl of Red ware with slightly in-curved featureless rim, tapering sides, flat button base of medium fabric with un-oxidized core, and the surface is treated with wash.

28 a) Bowl of Red ware with thick featureless rim, tapering corrugated sides and treated with thick coat of red slip.

28 b) Bowl of Red ware with featureless rim, tapering corrugated sides, flat base of coarse fabric, treated with wash.

29) Shallow bowl of dull Red ware with featureless rim, tapering corrugated sides, button base of coarse fabric.

30) Miniature bowl of Red ware with a globular body and flat string-cut base, of coarse fabric and un-oxidized core treated with internally provided lime coating.

31) Miniature bowl of dull Red ware with tapering sides with string base of medium fabric, treated with wash.

32) Fragment of a lamp, of Red ware, of coarse fabric showing un-oxidized core.
SĀTAVĀHANA; RED WARE

Fig. 99
Decorated pottery

(Fig.100, Pl.CLI-B, C & D)

a) Inscribed deep basin of Red ware with vertical rounded rim, convex sides distinguished by grooves and a four letter (Magalaka) incised in Brahmi script on the outer surface, of medium fabric showing oxidized core and treated with slip.

b) Bowl of white painted Black and Red ware with featureless rim, convex sides of fine fabric, showing oxidized core and treated with fine slip and painted with dotted horizontal lines.

c) Vase of Red ware with internally bevelled rim, convex sides with oxidized core and treated with red slip and polished.

d) Carinated bowl of Black and Red ware with an incurved bevelled rim, flattish base of fine to medium fabric, showing oxidized core treated with slip and burnished.

e) Vase of dull Red ware with a thickened out-curved grooved rim decorated with an appliqué band of finger-tip decorations, of medium to coarse fabric showing un-oxidized core, treated with thin slip.

f) Bowl of Red ware with vertical featureless rim, oblique sides, of fine fabric treated with fine slip.

g) Bowl of Red ware with internally bevelled rim. Convex profile is decorated with geometrical design within the dotted frame, of fine fabric and wet smoothened.

h) Bowl of Red ware with marginally out-turned featureless rim, convex profile decorated with a stamped design in floral design, of fine fabric showing oxidized core treated with wash.

i) Deep bowl of russet coated Black and Red ware with a featureless rim, vertical sides, of fine fabric showing an oxidized core treated with slip, marked with a series of oblique lines.

j) Miniature hand-made decorated vase of dull Red ware, with a vertical featureless rim, spherical side, with a flat base, the shoulder has been decorated with a band of flower motif, of coarse fabric showing un-oxidized core, treated with wash.

k) Fragment of vase of Black painted Red ware. The illustrated example is painted in Black outside with a pair of wavy lines of pattern on a horizontal line. The illustrated example is of coarse fabric, showing un-oxidized smoky core, treated with brick red slip. The inner black portion shows ill fired.

l) Vase of dull Red ware with an out-curved thickened nail-head rim, cylindrical neck marked with series of grooves, of coarse fabric showing an oxidized core.

m) Cylindrical upper portion of Surahi (flask) with slightly out-turned featureless rim of Red ware of coarse fabric, showing un-oxidized core.
n) Spout of dull Red ware of medium fabric and externally treated with wash.

o) Crucible of dull Red ware with an out-turned featureless rim, and inverted bell-shaped profile marked by a low relief groove on the upper half, conical base of medium to coarse fabric.

p) Spout of Red ware of medium fabric, showing oxidized core, and treated with red slip and polished.

q) Spout of Red ware of medium fabric, showing oxidized core, and treated with red slip and polished.

r) Bowl of Black and Red ware with an internally bevelled rim and convex sides, of fine to medium fabric, externally painted with a series of vertical bands, internally treated with fine slip.

s) Fragment of vase of Red ware is decorated with an appliqué design showing a series of triangles below a series of grooves of medium fabric showing un-oxidized core and externally treated with slip.

t) Mid-portion of a moulded pottery bowl of Red ware, convex sides decorated with parallel lines forming into a square blocker surrounded with a geometrical design and diamond pattern. The illustrated example is of fine fabric showing oxidized core treated with wash.

u) Fragment of a dull Red ware is decorated with incised design in triangles below a thick horizontal band. The illustrated example is of medium fabric showing an oxidized core, treated with red slip.

v) Fragment of a vase of Black painted Red ware. The illustrated example is painted in Black outside with a broad band of square pattern of medium fabric showing an oxidized core, treated externally with brick red slip.

w) Decorated dull Red ware with a pair of grooves and a series of arrows in horizontal, of medium fabric showing un-oxidized core, treated with red slip.

x) Finial showing a series of applied lugs of Red ware coarse fabric showing an oxidized core externally treated with thin red slip. Rough inner side further with appliqué mark and lime encrustation. There is evidence of grit and husk marks.

y) Finial showing applied lug. The illustrated example is of coarse fabric showing an oxidized core, externally treated with thin ed slip and lime, rough inner surface.
B. ANTIQUITIES

In spite of a limited area taken up for trial excavations for ascertaining chronology, as many as five classes of antiquities have been retrieved from Raṇamaṇḍala, which are representative of the respective periods, amply reflecting the socio-economic status of the contemporary people of Sannati.

A. STONE OBJECTS - PERIOD-I
(Fig.101, Pl.CLIII)

The earliest occupation of the mound (Raṇamaṇḍala) at Sannati is attested by the occurrence of implements of Mesolithic culture. The tools found in layer 10 included non-geometric microliths made on chalcedony, quartzite, milky quartz of crypto-crystalline family. Tool types consist of bladelets, points, lunate, borer-burin etc.,

Most of the objects retrieved belong to period IV i.e., Sätavāhana and a few stone objects with distinct polish can be attributed to the Mauryan levels of Period-III. Stone objects that have been retrieved from the excavations at Raṇamaṇḍala are mainly of granite, sandstone and schist essentially belonging to period. They are a polished granite block, pounders, mullers and quern:

A. Polished Granite Block: of squarish section probably used as foot of a pedestal (SAN-127).

B. Pounders: There are four fragmentary pounders, three of schist stone and one of granite. Of these a dumbbell shaped highly polished, fine grained pounder is an interesting find. The other examples are cylindrical in shape with ovalish section and highly polished surface. The flat top surface is damaged. Two of these of schist stone have roughly circular distal end with plano-convex section (SAN-128&108).

C. Muller: Long cylindrical muller of granite having circular section operated by hands for grinding purpose (SAN-109).

D. Quern: This legged quern is half broken, stool type of rectangular dressed block with two tapering legs, which are differentiated and separated. It is made of granite. The upper grinding surface has a saddle like shallow concave depression, obviously due to continuous long usage (SAN-110).

B. TERRACOTTA OBJECTS - PERIOD-IV
(Fig.102 & 104, Pl.CLIV)

All the 16 terracotta figurines retrieved belong to Period IV of the Sätavāhana occupation. Amongst them, a few are of religious affinity while a few are toys in the form of animal figurines. Noteworthy is the figurine of a smiling Yaksha with a typical elongated
MESOLITHIC, PERIOD I, MICROLITHIS

Fig. 101
headgear with perforations, which might have been used as an incense stand. The terracotta figurines also reflect and corroborate the sculptural renderings in the narrative friezes of Period-II, Phases-III-IV of the sculptural art at Kanaganahalli in comparison.

1. **Double moulded horse**: The figurine shows a well cast muzzle of a horse with a prominent snout, flaring nostril and heavy jaws. The sharp pointed ears encircled by a bunch of tassels and the groomed manes are well modelled. The reins of muzzle are also shown (not illustrated).

2. **Head of a female**: The figurine with elaborate headgear in the form of looped floral decoration from the rim of which at front are pearl drops on to the forehead. At the centre of the forehead is an ovalish *lalāta-tilaka*. Wide open eyes, fleshy cheeks with a well-delineated nose are the other features (SAN-112).

3. **Human head incense stand**: This is an interesting terracotta of a male head with a gentle smile. A conical cap, well groomed hair combed backwards crown the head. The conical cap and the face have tiny perforations made when the terracotta was wet indicating its usage as an incense stand. This terracotta was used by an affluent resident of the place (SAN-113).

4. **Mutilated torso**: Standing female is extant below the waist up to the ankles. She stands elegantly with right leg bent at the knee and perhaps the feet resting over a pedestal. The *pitāmbara* folds are clearly shown forming a tassel between the legs and are held by buckled *kaṭibandha*. She wears an elegant heavy anklet (SAN-114).

5 & 6. **Terracotta heads**: They have typical hairstyle, combed back and raised above the head in the form of a knot and held by a beaded band at the forehead. Both of them have sharp forehead, wide-open eyes and short nostrils (SAN-115).

7. **Kaolin head**: Polished terracotta, slightly earlier than 5 and 6 with elaborate conically arranged headgear tied by a band with lateral plaits. The forehead is treated with a prominent *lalāta-padma* decoration. The features of the face are similar to 5 and 6 (SAN-116).

8. **Terracotta Kubēra (PL. CLIV.A)**: From the Sātavāhana levels double moulded terracotta figurines on well lavigated clay have been found of which a headless seated Kubēra is quite interesting. The terracotta depicts a seated figure of a male *Yaksha* on an ovalish *vetrāsana* in *ardha-padmāsana*. In spite of mutilation, heavy ear ornaments akin to the one found upon the ears of *Yakshi* *Siri* depicted in the northern *āyaka vēdika* of *Mahā stūpa*. Multi-stringed beaded, *phalakahāra* and heavy *kēyūra* and *kankaṇas* are the other jewellery (SAN-117).

9. **Other Terracotta Objects**: Fragments of indistinct toy animal figures like elephant (?) (SAN-118), deer (?) and a
multi-hooded Nāga are other interesting terracottas. The perforations on the top of the extended hood of the Nāga figurine, reflect its usage as an incense stand. A few more fragments of terracotta of Sātavāhana period reflect the elaborate floral design prevalent in those times of which a spoked wheel with a perforated central hub forming part of an ornate toy cart is interesting (SAN-119).

C. METAL OBJECTS (PI.CLV-A)

A number of highly encrusted arrow-heads and nails of iron and copper, antimony rods have been retrieved from the excavation (SAN-120 a-k).

D. BONE AND IVORY (Fig.103 b&c, PI.CLV-B)

Some fragments of bone points were also recovered at Sannati, in which some are good specimen, showing shaft for hafting arrow. Ivory objects retrieved include a spatulated arrow head and ovate shaped arrow head (SAN-121 to 126).

E. BANGLES AND RINGS (Fig.105, PI.CLVI)

Bangles are very common here mainly in shell. Very few pieces of glass and terracotta are found whereas in shell many shapes and sizes are noticed with circular, triangular, rectangular sections, with blunt ridges at the centre of the bangle. A fairly good amount of small rings have also been recovered having circular and square sections. Segmented example of ring is also represented by a lonely specimen. The bangles and rings in other materials like copper and iron etc. are very rare.

F. BEADS AND JEWELLERY (Fig.106, PI.CLVII)

1. Beads: Large number of beads have been found on surface and recovered in many excavations at various locations of Sannati. Good amount of Terra Cotta beads mainly of Areca-nut shape have been found. Various semi-precious stones namely carnelian, jasper, agate, amethyst, coral, lapis lazuli, crystal, and shell are also the main materials for bead manufacturing. Bi-conical barrel shape and circular shape are the most common shapes next to areca nut shape popular in this lapidary industry of Sannati.

MATERIAL-WISE DISTRIBUTION OF BEADS (PL.CLVI)

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terracotta</td>
<td>20</td>
</tr>
<tr>
<td>Shell</td>
<td>10</td>
</tr>
<tr>
<td>Carnelian</td>
<td>08</td>
</tr>
<tr>
<td>Jasper</td>
<td>05</td>
</tr>
<tr>
<td>Paste</td>
<td>04</td>
</tr>
<tr>
<td>Crystal</td>
<td>03</td>
</tr>
<tr>
<td>Amethyst</td>
<td>03</td>
</tr>
<tr>
<td>Lapis Lazuli</td>
<td>02</td>
</tr>
<tr>
<td>Agate</td>
<td>01</td>
</tr>
<tr>
<td>Coral</td>
<td>01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>57</td>
</tr>
</tbody>
</table>

2. Ear Studs: This is also an important ornament in Sannati mainly found in terracotta. One of the fine examples is a crystal ear-stud. It occurred in various measurements.
MAURYAN PERIOD III; TERRACOTTA BEADS

Fig. 102
A. Beads of semi-precious stones

B. Shell objects

C. Bone points

Fig. 103
SĀTAVĀHANA PERIOD IV; TERRACOTTA BEADS

Fig. 104
SĀTAVĀHANA PERIOD IV; SHELL OBJECTS

Fig. 105
3. **Pendants**: Three examples of pendants have been found here, of which two are in shell and one in terracotta. One of the pendants is a masterpiece of the shell workmanship of Sannati people, with a length of 5 cm and a width of 3 cm with eight perforations in the section (SAN-91); other is of Terracotta conical flat base pendant (SAN-78).

**ILLUSTRATION OF ANTIQUITIES**

**Period-I-Microliths (Fig.101)**

**Period-III (Fig.102)**

1. Terracotta, Short Ghata shaped Bead, Circular (SAN-99)
2. Terracotta, Long Areca-nut shape, Circular (SAN-90)
3. Terracotta, Short convex truncate, Circular (SAN-87)
4. Terracotta, Long Areca-nut Bead, Circular (SAN-92)
5. Terracotta, Conical Areca-nut, Circular (SAN-84)
6. Terracotta, Conical Areca-nut, Circular (SAN-73)
7. Terracotta, Conical Areca-nut, Circular (SAN-84)
8. Terracotta, Truncated Ear stud, Circular (SAN-74)
9. Terracotta, Truncated Ear stud, Circular (SAN-77)
10. Terracotta, Conical Pendant, Flat Circular base (SAN-78)

11. Terracotta, Short Truncated Ear stud, Circular (SAN-75)

**Period-III (Fig.103-A to C)**

1. Jasper, Globular, Spherical (SAN-97)
2. Carnelian, Globular, Spherical (SAN-98)
3. Jasper, Globular, Spherical (SAN-91)
4. Crystal, Circular, Tabular (SAN-106)
5. Coral, Short cylinder, Circular (SAN-80)
6. Carnelian, Hexagonal etched Bead, Spherical (SAN-88)
7. Jasper, Barrel shape, Oblong (SAN-100)
8. Lapis Lazuli, Rectangular, Barrel (SAN-82)
9. Shell Bangle fragment, Tabular (SAN-86)
10. Shell Bangle fragment, Square (SAN-79)
11. Shell Bangle fragment, Oval (SAN-79-a)
12. Shell Bangle fragment, Rectangular (SAN-89)
13. Shell Disc shape, Circular (SAN-83)
SĀTAVĀHANA PERIOD IV; BEADS OF SEMI-PRECIOUS STONES

Fig. 106
14. Shell Pendant with eight transverse perforations, Convex (SAN-91)
15. Bone, Long Arrow head (SAN-121)
16. Bone, Spatulated Arrow head (SAN-122)
17. Bone, Ovate Arrow head (SAN-123)
18. Bone, Long Arrow head (SAN-124)
19. Bone, Long thick arrow head (SAN-125)
20. Bone, Point with shaft (SAN-126)

**Period-IV (Fig.104)**

1. Terracotta, Areca-nut, Circular (SAN-6)
2. Terracotta, Long Areca-nut, Circular (SAN-18)
3. Terracotta, Areca-nut, Circular (SAN-19)
4. Terracotta, Areca-nut, Circular (SAN-19 a)
5. Terracotta, Areca-nut, Circular (SAN-42)
6. Terracotta, Bi-cone truncated, Circular (SAN-47)
7. Terracotta, Bi-cone, top, Circular (SAN-49)
8. Terracotta, Bi-cone spherical wheel with hub (SAN-7)
9. Terracotta, Biconcave, Rectangular (SAN-31)
10. Crystal, Bi-concave, Rectangular (SAN-44)
11. Shell, Bangle fragment, Oval (SAN-26)
12. Shell, Bangle fragment, Oval (SAN-26a)
13. Shell, Bangle fragment, Oval (SAN-26b)
14. Shell, Bangle fragment, Rectangular (SAN-51)
15. Shell, Bangle fragment, Blunt mid ridge (SAN-34)
16. Shell, Bangle fragment, Blunt mid ridge (34a)
17. Shell, Bangle fragment, Blunt mid ridge (SAN-34b)
18. Shell, Bangle fragment, Oval (SAN-34c)
19. Shell, Bangle fragment, Square (SAN-37)
20. Shell, Conch-shaped Pendant (SAN-62)
21. Shell, Rectangular, Circular (SAN-63)
22. Shell, Rectangular, Circular (SAN-5)
23. Shell, Circular Ear Ring, Rectangular (SAN-11)
24. Shell, Ring fragment, Square (SAN-65)
25. Shell, Ring fragment, Square (SAN-69)
Pottery And Antiquities

16. Shell, Ring fragment, Square (SAN-71)
17. Shell, Ring fragment, Square (SAN-79)
18. Shell, Segmented Ring fragment (SAN-45)

Period-IV (Fig.106)

1. Carnelian, Long Barrel shaped etched, Circular (SAN-66)
2. Carnelian, Bi-conical Barrel shape, Circular (SAN-50)
3. Carnelian, Truncated Barrel ear shaped, Circular (SAN-38)
4. Crystal, Globular, Circular (SAN-28)
5. Carnelian, Bi-conical Barrel, Circular (SAN-60)
6. Carnelian, Truncated Barrel, Circular (SAN-30)
7. Jasper, Spherical, Circular (SAN-67)
8. Amethyst, Spherical, Circular (SAN-56)
9. Moss Agate, Circular, Tabular (SAN-61)
10. Jasper, Globular, Bi-cone Truncated (SAN-20)
11. Amethyst, Short Barrel, Bi-cone Truncate, Oval (SAN-39)
12. Crystal, Circular, Tabular (SAN-12)
13. Lapis Lazuli, Long Square Cylinder, Square (SAN-48)
14. Carnelian, Globular, Circular (SAN-4)
15. Carnelian, Circular (SAN-52)
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Pottery, Megalithic period (period-II)
Excavations at Kanaganahalli (Sannati)

PLATE CXLIX

Pottery: A. Maurya period (period-III); B. Megalithic period (period-IIA)
PLATE CLI

Pottery Sātavāhana (Period-IV)
A. Red ware; B&C. Decorated wares; D. Inscribed pottery
Mesolithic, (Period-I) Microliths
PLATE CLIII

Stone objects
A&B. Mauryan period (period-III)

Stone objects
C. Satavahana period (period-IV)
A. Yaksha

B. Terracotta human heads

C. Other terracotta figurines

Terracotta objects, period-IV, Sātavāhana
PLATE CLV

A. Metal objects; B. Bone and ivory objects
A. Period - III, Mauryan; B. Period - IV, Satavahana

Shell Objects
**PLATE CLVII**

A. Beads of Period-III, Maurya
   A. Terracotta; B. Semi-precious stones

B. Beads of period-IV Sātavāhana
   C. Terracotta; D. Semi - precious stones
Previous data

The archaeological explorations and excavations conducted by various agencies at Sannati and its suburbs have yielded a wealth of numismatic data in the form of punch-marked coins, inscribed and uninscribed coins of lead, potin, copper and silver. A critical study of these coins, except those retrieved by Howell from the excavations from the stūpa site at Ānegutti (1986-89), is yet to be published.

A total of 79 coins in lead, copper and silver were reported by Howell from Sannati and its environs. Amongst these, 40 were found in stratified context from the mound at Ānegutti (SAN-1), 36 from the unstratified deposits of Raṇamandala (SAN-2) and three were reported as surface finds in the village Sannati. These coins have been tabulated under 19 types and sub types ascribed to the following 5 Śātavāhana rulers.

1) Ṣātakarnī-I
2) King Śātavāhana identified as Kumāra Śātavāhana, son of Ṣātakarnī-I
3) Śrī Sātakarnī (Ṣātakarnī II)
4) Pulumāvi-I- son of Sātakarnī - II
5) Vāsishṭhiputra Pulumāvi or Vāsishṭhiputra Siva Siri Pulumāvi

Based on the above data, Howell opines that these evidences “throw fresh light on the rule and history of the Śātavāhanas extending their influence in the area from the times of Sātakarnī-I to that of Vāsishṭhiputra Siva Siri Pulumāvi.” Subsequently, I.K. Sarma, J. Varaprasada Rao and Jitendra Das have also written about the various aspects of the Śātavāhana coins reported from different localities of Sannati.

Coins from the present excavation

In the light of the above discoveries, the numismatic data brought to light from the recent excavations at Raṇamandala and the stūpa site at Kanaganahalli assume great significance. A comprehensive study with special reference to Sannati and its suburbs is attempted here which would yield a clear and coherent picture of the Śātavāhana rule in this region.

A total of 125 coins of circular, ovalish and square shape were retrieved from the excavations at Raṇamandala habitation site (16) and the Kanaganahalli stūpa site (109). Out of these coins, 122 belong to the early historic period and three are of late medieval period. Interestingly, at both...
these sites, the excavation has yielded coins in stratified context.

Of the stratified coins from Ranamandala area, 14 are of lead and one each is of copper and potin. Amongst these, four inscribed coins in lead, copper and potin are worn out and are indistinct.

In addition to the vast sculptured slabs, carved architectural members and rich epigraphical records, the excavations in the stūpa complex at Kanaganahalli have also brought to light a series of coins issued by the Satavahana kings. In this, as many as 48 lead, 20 potin and seven copper coins retrieved from the site are inscribed and are of paramount importance in arriving at a chronological sequence of different phases of structural activity in the stūpa complex. Twenty-two coins of lead, copper and potin are worn out, mutilated and have incomplete legend. Amongst these coins, a few circular and square copper coins have symbols without any legend and are die-struck.

**Coins before chemical cleaning**

At the time of discovery these coins had a greenish to white patination obliterating the details. A preliminary examination of these coins indicated that they were issued by Sātavāhana kings - Siri Sātakarnī, Pulumāvi, Śiva Siri Pulumāvi and Yajñā Sātakarnī. The most significant of these coins however is that irrespective of the issuer king, all these coins bear the three-arched hill with or without a crescent above as the common imprint on the obverse along with the legend mentioning the name of the ruler in faint letterings. The reverse has Ujjain symbol with or without pellets.

**General Observations**

After chemical treatment it was observed that the coins were much worn out due to wide circulation and comparatively longer duration as currency, besides the inherent weakness of the material contents used. This has resulted in wear and tear necessitating restriking time and again, smudging at the time of minting, rendering the symbols and the legends sometimes less legible. Inspite of this, some of the coins have been clearly identified on the basis of the extant portion of the characters of the legend based on the serifs alone and sometimes on the basis of the vertical and horizontal strokes of a character visible. Some have been identified based on the extant first or end part of the legend and attributed to a ruler. However, some of the coins, in spite of the legend being partly decipherable, have been classified as indistinct due to the absence of any distinct feature for identification and attribution towards a particular king.

Further, the erosion has resulted in marked variations in the weight standards posing great problems in classification of the coins based on weights. Irrespective
Coins of the metals used, the coins have been found to weigh between 2 to 4, 4 to 6, 6 to 8, and 8 to 12 gm, and occasionally weigh as much as 28 gm. On an average the circular coins range from 1.2 cm to 2.2 cm in diameter.

The lead coins occur in various shapes like circular, oval, rectangular and/or irregular and range in weight between 2 and 28 gm. The copper alloy coins are square, rectangular and circular in shape and weigh between 2 and 12 gm. The coins are categorised into different types and sub-types based on the main and auxiliary symbols on the obverse and reverse. The three-arched hill is the most common symbol occurring on majority of the coins. The symbol may be with or without crescent and has prominent base line, sometimes with well struck triangular head followed by a straight or wavy river line. Other auxiliary symbols that normally occur on the obverse include animals like bull, lion and elephant; moon, swastika and triangular-headed standards. The legend along the periphery is usually in an anti-clockwise direction but occasionally it occurs clockwise also. The reverse invariably bears Ujjain symbol sometimes accompanied by śrivatsa, nandipāda and sun. The Ujjain symbol is depicted with single or double circles with elevated or flat pellets at the centre depending upon the die used for casting.

It is also observed that the axis of the symbols struck fluctuates between 20 degrees to diagonally opposite direction. This has also resulted in the slippage of the legends and symbols to periphery or partly out of flan, resulting in smudging, bulging, splitting and obliteration of the symbols.

Stratigraphically, these coins start occurring from the middle and lower levels of layer (2) continue in layer (3) below the pradakṣiṇāpatha and the central core trench. The occurrence of the coins from the surface of hemispherical mound begins from an average depth of 0.20 m from the mound level in layer (2) and the concentration is maximum at a depth of 1.80 m and continues further below in lesser numbers corresponding with the working level of the pradakṣiṇāpatha.

From the tabulation and distribution pattern of their findspot at the mahāchaitya, it is observed that a higher percentage of them have been found concentrated towards southeast and northwest of the stūpa, nearer to the respective entrances at north, south and west.

The finds on the southern side are distributed between the southern entrance, more towards the eastern entrance to the apsidal brick chaitya. This may suggest the importance of southern entrance from river side with a bathing ghat and the ferry point, wherein the devotees visited the place through the river in navigable boats. This is buttressed by (a) the location of Yaksha bearing the bowl of offerings and also speaks
logically, the placing of the chief priest or incharge of the mahāchaitya at the apsidal structure and (b) an epigraphical record, also on the southern side over the eastern corner tabha, recording for the first time at Sannati about the cash grant of 800 karshāpanas (athasatakāhāpanas) and 200 dārana (dinars(?)).

Similarly, the western entrance, the land approach from Sannati covering other important religious centres, also had a Yaksha sculpture installed as also at the northern entrance.

The following is the typology of the coins and the rulers mentioned therein:

**I SQUARE, SILVER PUNCH-MARKED COIN**

Acc.No.81 (Pl.CLVIII.1)

Obv: (1) Six spoked wheel at top right corner, (2) Humped bull facing right within a rectangular frame to the left of the wheel, (3) sun, (4) moon and (5) peacock facing left over a hill along the bottom border.

Rev: Diagonally struck Caduceus symbol.

This is a very significant coin and the only silver punchmarked coin retrieved from Kanaganahalli-Sannati area so far and appears to provide a firm basis for dating the habitation at Sannati-Kanaganahalli area to the pre-Āsoka-Mauryan context.

Incidentally, it was found 2.20 m below the extant pradaksināpatha and overlying the earlier pradaksināpatha along with a few coins of Śatakarni. The Caduceus symbol, especially occurring as a prime reverse symbol, appears on the punch-marked coins of silver and copper of the Mauryan federal states during the pre-Āsokan times and continues during Āsokan and post-Āsokan period. Similarly, the peacock on hill appears as a fifth symbol on the obverse in the same chronological horizon.

The symbols also appear in the coins discovered at Amaravati, Karimnagar, Gulbarga, Raichur, etc. all within the core zone of the Śatavāhana empire comprising Asika-Mūlaka-Aśmaka region.

**II CIRCULAR UNINSCRIBED DIE-STRUCK COPPER COINS**

As many as 12 die-struck copper coins have been found from the excavations from which two coins as detailed below are discussed and the rest of the coins are discussed at appropriate places.

Acc.No.12 (Pl.CLVIII.2) & 35

Obv: Prominent three-arched hill topped by crescent.

Rev: Hollow cross (chatushpatha)

These two coins retrieved respectively from a depth of 1 m and 1.4 m below the ground level near the southern entrance and east of the northern circular votive stupas are rare types so far reported from this region. The symbols are the
commonest symbols characteristically present in a class of uninscribed coins of the die-struck variety from Taxila. Nearer home, Kosambi\(^9\) is the nearest place where coins bearing these symbols, in association with other auxiliary symbols are reported. It is very significant to note that in these two coins of Kanaganahalli the symbols are prime on obverse and reverse without any auxiliary symbols. It is not out of context to note that a variant form of \textit{chatuspatha} or hollow cross occurs as a pictograph on the coins of Ujjain and Sanchi.\(^10\)

The significance and chronological context of these coins \textit{vis-a-vis} constructional phases of the \textit{stūpa} will be discussed in the chapter on chronology.

### III COINS OF MAHĀRATHI SIRI SĀTAVĀHANA (PL.CLIIX)

There are six coins of \textit{Mahārathi} Siri Sātavāhana, five retrieved from the \textit{stūpa} mound and one from Raṇamandala from Sannati. Two of these bear the legend \textit{Siri} Sātavāhanasa without any prefix indicative of regal status, two more (67 & 110) have the prefix “\textit{mahārathi}” whereas the remaining three (86 & 120) with the pre-fix: \textit{Rajño}.

Howell\(^11\) reported identical coins from Raṇamandala and categorised them as type-II and III respectively belonging to \textit{Rajño Siri Sātavāhana} and \textit{Mahara-Sātavāhana}. He attributed the coins to Kumāra Sātavāhana, son of Sātakarni-I based on the main and auxiliary symbols on coins found in Nevasa and elsewhere.

J.Varaprasada Rao\(^12\), restored the fourth letter as \textit{ja} in the legend Mahara-Siri Sātavāhana and read the text as: \textit{Mahārā(ja?) Siri Sātavāhana (sa)} and attributed the coins to King Sātavāhana.

I.K. Sarma\(^13\) has discussed at length the significance of the discovery of lead coins of King Sātavāhana at Sannati and attributed the coin to King Sātavāhana, son of Sri Sātakarni-I. He opines that, “the three-arched hill is undoubtedly a territorial symbol and Sātavāhana’s rise to power was confined first to these three ancient zones of Asīka-Asmaka -Mūlaka in which northern Karnataka as well as the contiguous Andhra-Telangana areas fell. Their fortunes were linked with these three territories. It is in the fitness of things that King Sātavāhana, the second monarch, heralded the issue of the coin type with three-arch hill surmounted by the triangle-headed standard for circulation in Sannati area to impress on the conquered subjects the rise of the Sātavāhana power. It would then follow that regions of northern Karnataka, its contiguous Telangana areas of Andhra, were wrested by this early Sātavāhana monarch from perhaps a later Mauryan ruler or their provincial Governor.

It is interesting to note in this connection that while commenting upon the inscriptions and sculptural narrations of the Sātavāhana kings in the family’s
Pratimagriha or Dėvakula (Sātavāhana Statue Gallery) at Naneghat, A.M. Shastri remarks that Chhimuka Sātavāhana himself was responsible for issuing alternately the coins mentioning him only as King Sātavāhana and the coins with both the legends viz., Chhimuka Sātavāhana and Sātavāhana have been reported from Kotilingala and Sanga Reddy in Karimnagar District of the Telangana region of Andhra Pradesh. The coins with the name Sātavāhana alone have been reported from numerous sites including Kondapur in Medak District of Andhra Pradesh, Nevasa in Ahmednagar District, Junar in Pune District, Marathwada and Vidarbha regions of Maharashtra and off late from Sannati in Gulbarga District of Karnataka.

Further, he opines that Simukachhimuka is assigned a reign of 23 years unanimously in the Puranas. A major part of this period was probably one during which he continued to acknowledge the suzerainty of his nominal Kāṇva masters. While at the same time, carrying out rallies against them and it was most probably at the close of this period that he finally got rid of vassalage, declaring independence by doing away with the last Kāṇva king Suśarman and destroying whatever was still remaining with the Sungas.

In the background of the above, the availability of the coins of King Siri Sātavāhana with the suffixes Mahārathī and Rājño assume greater significance especially as they are from stratified contexts. It would be in the fitness of things to sum up that Siri Sātavāhana hitherto identified with Kumāra Sātavāhana, son of Sātakarnī-I, is none other than Simukachhimuka Sātavāhana, founder of the celebrated Sātavahana dynasty as per the Puranic texts. He issued coins in the vassal capacity under the Kāṇvas with the legend Mahārathino Siri Sātavāhanasa and after declaring independence, with the royal epithet Rājño followed by the common name Siri Sātavāhana. All these types retrieved from Sannati region have been described and illustrated.

IV COINS OF SĀTAKARNĪ (Pl.CLX)

As many as 25 coins of Sātakarnī have been found from the excavations, of which the following important coins are discussed below:

Coin No.7 (Pl.CLX.1) is a circular copper coin of elephant-type. On the obverse is a majestic elephant moving to left with its extended trunk. On the reverse, uniformly arched three-hill symbol with a crescent at the top is significant.

Coin No.62 (Pl.CLIΧ.5) appears to be the restruck coin as evidenced by the faint Ujjain symbol forcefully restruck with a triangular standard in a circular punch. At the obverse, the die is struck to the extreme right of the coin obliterating much of the legend in which at the extreme, diagonal
corner at right of the coin is mutilated letter sa and at the base of the river line ni. In absence of rest of the legend, around the three-arched hill showing any prefix or suffix, the coin is attributed to Satakarni. A microscopic study has revealed wavy lines on the obverse indicating heating of the coin for restriking.

The potin coins have at obverse prominent three-arched hill with a river line and legend sa ta ka ni in bold characters in anticlockwise beginning at 11 o’clock and ending at 6 o’clock. The reverse has prominent Ujjain symbol and one of the distals has a sun symbol as well.

The coins in lead are much clearer and well struck compared to the coins in other metals of the same king as noticed in coin No.9 and 37 (Pl.CLX.5). These coins on the obverse, as usual have prominent three-arched hill with a crescent atop and a straight river line. Interestingly, the basal line of the hillock at their distal ends is triangular-headed. The legend in anticlockwise usually begins at 11 o’clock and ends at 5 o’clock. However, in coin no.9, the legend begins at 1 o’clock and perhaps ends at 6 o’clock (mutilated). The characters of the legend are typical with prominent nail-heads for their verticals. At the reverse, the usual Ujjain symbol with a single circle and a prominent central pellet is seen as in coin Nos.9, 36 & 39. However, in coin No.46, it is a double circle with a central pellet. Interestingly, coin No.36 has in addition to the Ujjain symbol srivatsa and nandipada alternating with the arms of the Ujjain symbols.

V COINS OF KING SRI SÂTAKARÂṆI

Most of the coins retrieved from Kanaganahalli excavation are of Sri Satakarni and they occur in lead and potin. Interestingly, coins of copper are conspicuous by their absence. All the coins are of same type three-arched hill with crescent on top and riverline at the base on the obverse and prominent Ujjain symbol at the reverse. Some of the coins, which have not been struck well show blobs of molten metal that get smudged into the periphery and in spite of smudging, they could be identified as belonging to this ruler (Coin Nos.32, 85 (Pl.CLX.9), 98, 103, 104 and 107). While some of the coins have a centrally placed symbol at the obverse and uniformly distributed legend at the periphery with their serifs facing the inner side of the coin (Coin Nos.15 & 25). Some of the coins are mis-struck wherein the shift either upwards (Coin Nos.32, 85, 92, 96, 102, 103, 104 and 107) are laterally edging out the bottom half of the legends. In a few coins the symbols are shifted to the base due to which the riverline and part of the legend get smudged into the periphery (Coin No.83) (Pl.CLX.7). In all these coins the prominent anticlockwise legend invariably begins at 4 o’clock and
ends at 5 o’clock. The complete title Rajno Siri Sātakanisa is invariably found with usually the ri of Siri getting into the horns of the crescent symbol. Prominent nail-headed serifs for the letters and careful inscribing can be seen. The Ujjain symbol at the reverse is sometimes accompanied by srivatsa and nandipāda along with the symbol of sun as in Coin No.45 (Pl.CLX.6)

VI COINS OF SIVA SIRI PULUMĀVI (Pl.CLXI.5)

As many as eight coins (43, 44, 47, 48, 52, 55, 57 and 58) of this king have been found near the apsidal brick chaitya to the southeast of the mahāchaitya and one at the southwest corner, outside the railing. Of these, 55, 57 and 58 are in potin and the remaining five are of lead. These coins also bear on the obverse, three-arched hill with crescent and riverline, which varies from straight to wavy. The base line of three-arched hill usually has prominent nail head at the distal ends. These coins too reflect improper casting wherein the symbols get smudged, tilted or shifted from the central alignment. The clockwise legend usually has the complete text of legend Rajno Siva Siri Pulumāvisa. However, due to aberrations in the periphery either the first part of the legend Rajno Siva gets obliterated or distorted or the last mā vi sa suffer the same distortion. Generally, the complete legend begins clockwise from 9 o’clock to 7 o’clock. As in the case of the symbol on the obverse, the Ujjain symbol of these coins at the reverse also reflect improper minting since the symbol of double circle and central pellet are distorted or peripherally oriented.

VII COINS OF YAJNA ŚRI SĀTAKARṇI (Pl.CLXI.9)

Four coins of Yajna Śri, the last powerful imperial ruler, are found incidentally near the apsidal chaitya. A variety of coins of this king are known from excavated sites all over the Sātavāhana dominion including Kundur hoard in the Uttarakannada District.

Of these coins, three are of lead and one a potin coin. These coins appear to be slightly mis-struck and have three-arched hill with crescent and river with the legends usually beginning clockwise at 11 o’clock and ending at 6 o’clock. From the legend it is observed that the characters are thin, irregular in size and no uniformity is maintained reflecting upon poor casting. Similarly, the symbols are also not uniform and either get stretched, stunted or smudged. The later part of the legend reading Sātakarṇi is invariably either distorted or lost in the periphery speaking of miscasting. The reverse usually has large Ujjain symbol with a bulged-out central pellet. Each lobe of the Ujjain symbol has a double circle and a central pellet. Even here, it is observed that the symbol is either large, struck to a periphery or to a side.
OBSERVATIONS

It is well known that the three-arched hill first used by the Mauryas is a significant symbol denoting the territorial features. The appearance of the symbol as a common denominator on the obverse of all the coins with the exception of a few die struck coins in copper and silver punch marked coin of at least the present site assumes greater significance. There is a possibility of theorising that the continuation in toto of this symbol of the Mauryas by the Sātavāhanas may suggest the mastery gained over the Mauryan territory of the southern periphery successfully by the early Sātavāhana kings as evidenced by a few coins in which the restruck coins reflect a triangular headed standard superimposed on the three arched hills, especially of early Sātavāhana rulers. This postulation however needs to be further substantiated.
# CATALOGUE OF COINS

<table>
<thead>
<tr>
<th>Coin No.</th>
<th>Issued by</th>
<th>Material / Shape / size / weight (in mm and gm)</th>
<th>Depth In mtrs</th>
<th>Find spot and short description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coin No.</td>
<td>Description</td>
<td>Metal</td>
<td>Diameter (mm)</td>
<td>Weight (g)</td>
</tr>
<tr>
<td>---------</td>
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<td>------------</td>
</tr>
<tr>
<td>KGH - 007</td>
<td>Satakarı (Pl.CLX.1)</td>
<td>Copper</td>
<td>Circular 14</td>
<td>1.85</td>
</tr>
<tr>
<td>KGH - 012</td>
<td>Die-struck (Pl.CLVIII.2)</td>
<td>Copper</td>
<td>Circular 22</td>
<td>1.90</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Material</td>
<td>Weight</td>
<td>Find Location</td>
</tr>
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<td>-----------</td>
<td>--------------------------------------------------</td>
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<td>--------</td>
<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>KGH - 014</td>
<td>Indistinct</td>
<td>Lead</td>
<td>1.05</td>
<td>Northwest corner of the <em>stūpa</em> outside the railing.</td>
</tr>
<tr>
<td>KGH - 017</td>
<td>Indistinct</td>
<td>Potin,</td>
<td>1.25</td>
<td>North of eastern entrance. Worn out.</td>
</tr>
<tr>
<td>KGH - 019</td>
<td>Indistinct</td>
<td>Lead</td>
<td>1.60</td>
<td>Northwest corner of <em>MC</em> outside the railing. Obv: Indistinct; three-arched hill. Rev: Very distinct Ujjain symbol with a five petalled flower (?)</td>
</tr>
<tr>
<td>KGH - 020</td>
<td>Die-struck (Pl.CLVIII.3)</td>
<td>Copper</td>
<td>1.80</td>
<td>Outside the railing to the west of northern entrance. Obv: Three-arched hill with crescent; river line missing (diagonally struck). Rev: Ujjain symbol.</td>
</tr>
<tr>
<td>KGH - 023</td>
<td>Indistinct</td>
<td>Potin Circular 14, 1</td>
<td>1.75</td>
<td>North of western entrance (outside). Obv: Worn out and details are lost. Rev: Faint Ujjain symbol.</td>
</tr>
<tr>
<td>KGH - 025</td>
<td>Sri Satakarni (Pl.C LX.4)</td>
<td>Lead, Circular 21, 8</td>
<td>0.40</td>
<td>South of western entrance outside the railing. Obv: Three-arched hill with crescent and a river line. Extra metal around the periphery. Legend: <em>Ra jno Si ri Sā ta kam ni sa.</em> Rev: Prominent symbols with double circles with pellet.</td>
</tr>
<tr>
<td>KGH - 026</td>
<td>Indistinct</td>
<td>Copper Circular</td>
<td>0.55</td>
<td>Surface Persian coin.</td>
</tr>
<tr>
<td>KGH - 027</td>
<td>Indistinct</td>
<td>Potin, Circular 13, 2</td>
<td>0.75</td>
<td>Northwest of western entrance. Obv: Three-arched hill with high orb crescent. The base line of the hill at distal ends appears like triangular serifs. Wavy river line. Rev: Faint Ujjain symbol with a circle and dot.</td>
</tr>
</tbody>
</table>
**Excavations at Kanaganahalli (Sannati)**

<table>
<thead>
<tr>
<th>KGH - 028</th>
<th>Die-struck (Pl.CLVIII.4)</th>
<th>Copper, Trapezoid 18 x 15, 2</th>
<th>1.90</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

Above the extant *prodakshinā*, Western *āyaka* platform.

Obv: Diagonally struck three high arched hill with faint traces of a crescent. River line missing.

Rev: Diagonally struck, worn out Ujjain symbol with double circles and a dot. Only one circle is clearly visible while the other three are faint.

<table>
<thead>
<tr>
<th>KGH - 029</th>
<th>Śri Sātakarni</th>
<th>Lead, Circular 17, 2</th>
<th>1.00</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

North of western entrance outside the railing.

Obv: High three-arched hill with a crescent placed slightly away from the hill. Straight river line.

Legend: Anticlockwise begins at 4 o’clock and ends at 5 o’clock.

..Śi ri (Sā) .. ni sa

Rev: Ujjain symbol with a single circle and prominent pallet.

<table>
<thead>
<tr>
<th>KGH - 030</th>
<th>Śri Sātakarni</th>
<th>Lead, ovalish 14, 2</th>
<th>0.50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Southwest of western entrance near promenade pillars.

Obv: Three-arched hill with prominent crescent and a faint river line. The periphery of the coin is pressed.

Legend: Anticlockwise; 4 o’clock to 5 o’clock.

*Rājno Si . Sā (ta) kam . sa*

Rev: Prominent Ujjain symbol with double circle and dot; two circles are edged into periphery.

<table>
<thead>
<tr>
<th>KGH - 031</th>
<th>AŚātavāhanaruler</th>
<th>Lead, Circular 14, 2</th>
<th>1.30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Southeastern corner outside the railing.

Obv: Three-arched hill struck to bottom of the coin with a crescent with its horns curled outwards. River line missing.

Legend: Anticlockwise.

Śi ri Sā

Interestingly, the letter *sa* gets into the crescent.

Rev: Worn out Ujjain symbol with triangular headed standard. The single circle Ujjain symbol has over shot the periphery.
<table>
<thead>
<tr>
<th>Coin Code</th>
<th>Series</th>
<th>Metal</th>
<th>Shape</th>
<th>Weight (Rs)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGH-032</td>
<td>Sri Satakarni</td>
<td>Potin, Circular</td>
<td>18, 2</td>
<td>1.25</td>
<td>North of western entrance. Obv: Thick three-arched hill with crescent with the horns of crescent stretched towards periphery-struck to the right of the coin. Legend: Anticlockwise begins at 3 'o'clock - 5 'o' clock <em>Rajno Si (ri) ...ni sa.</em> Rev: Mis-struck Ujjain symbol with a double circle and prominent pellet. Only two circles are visible.</td>
</tr>
<tr>
<td>KGH-033</td>
<td>Die-struck (Pl.CLVIII.5)</td>
<td>Copper, Circular</td>
<td>21, 12</td>
<td>1.60</td>
<td>West of northern entrance. Obv: Three-arched hill with a stretched crescent; river line absent. A worn out <em>swastika</em> atop the crescent closer to the periphery. Rev: Plain. The symbol on the obverse is somewhat in high relief due to the central lumping of the metal.</td>
</tr>
<tr>
<td>KGH-034</td>
<td>Sri Satakarni</td>
<td>Lead, Circular</td>
<td>17, 5</td>
<td>0.75</td>
<td>West of western entrance. Obv: Three-arched hill with a prominent crescent struck to a side. River line missing. Legend: Anticlockwise; begins at 4 o' clock - 11 o' clock. <em>Rajno Si (Sā).</em> Rest of the legend from 11 o' clock upto 6 o' clock, if any, is lost in the periphery. Rev: Prominent Ujjain symbol with a circle and dot. While two circles are full the other two are imprinted half due to ill casting.</td>
</tr>
<tr>
<td>KGH-035</td>
<td>Die-struck (indistinct)</td>
<td>Copper, Circular</td>
<td>22, 8</td>
<td>1.60</td>
<td>East of northern votive <em>stūpa</em>. Obv: Uniform three-arched hill and crescent; the arms of the crescent wider than usual. Rev: Prominent <em>Chatuspatha</em> symbol.</td>
</tr>
<tr>
<td>KGH - 036</td>
<td>Śri Sātakarni</td>
<td>Lead, Circular 22, 8</td>
<td>1.80</td>
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<tr>
<td></td>
<td></td>
<td>South east of MC 25 cm below pradakshinā. Obv: Well struck three-arched hill with a mutilated crescent at the top. The river line is thick. Legend: Anticlockwise extant from 11 o’clock to 5 o’clock. <strong>Sāta kamni sa</strong> All the letters are bold and thick with prominent triangular heads for the vertical and horizontal strokes. Rev: Prominent Ujjain symbol with double circle with a dot. Srivatsa mark between two circles, partially smudged into the periphery. Alternating between them is faint <em>nandipāda</em>.</td>
<td></td>
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<td></td>
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</table>

<table>
<thead>
<tr>
<th>KGH - 037</th>
<th>Śri Sātakarni (Pl.CLX.5)</th>
<th>Potin Circular 19, 4</th>
<th>0.85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>North of northern entrance. Obv: Worn out slightly at the right periphery. Has three-arched hill with crescent; straight thin river line. Legend: Clockwise; begins at 8 o’clock and extant up to 4 o’clock. <strong>(Ra) (jno) Sī ri Sā ta ka</strong> The vertical limb of ra and ka are cursive and prominent triangular headed letters. Rev: Prominent Ujjain symbol with double circle and a central pellet and two Srivatsa marks, the apex of which are smudged into the periphery.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>KGH - 038</th>
<th>Sātavāhana</th>
<th>Lead, Circular 16, 2</th>
<th>1.80</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Northeastern corner of the apsidal Chaitya. Obv: Due to mutilation only two hillocks of the three-arched hill are seen with a thin river line. The extant basal line of the hillock at one side has prominent triangular head. Legend: Clockwise. <strong>Ra jīno ......na Sā</strong> Rev: Ujjain symbol with double circle with prominent pellet.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Coin</td>
<td>Type</td>
<td>Extinct</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
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<td>---------</td>
</tr>
</tbody>
</table>
| KGH - 039 | Sātakarnī | Lead | Pear-shaped | 16, 2 | Northeastern corner of the apsidal Chaitya. Obv: Three-arched hill with crescent with a thick base line. Thin straight river line merges with the strokes of the letter. Legend CW; the legend towards the right of coin is lost in the edged periphery from 8 o’clock to 12 o’clock. It is indistinct between 12 o’clock to 2 o’clock; the extant from 3 o’clock to 8 o’clock reads Sāta kam ni sa.  
Rev: Ujjain symbol with a single circle with thick bulged pellet. |
| KGH - 040 | Yajña Sātakarnī (Pl.CLXI.8) | Potin, Circular | 16, 2 | 1.80 | Northeastern corner of the apsidal Chaitya. Obv: Three-arched hill with crescent; river line slightly arched. The letters and symbol are stretched. Legend: Clockwise; the letters are thin, and begin at 11 o’clock and end at 6 o’clock. The extant clear legend begins at 11 o’clock near the right horn of the crescent and reads (Si) (ri) ya jna Sā (ta)  
Rev: Ujjain symbol with a circle and a large dot slightly elevated. The quality of the coin is inferior. |
| KGH - 041 | Indistinct | Potin, Circular | 17, 2 | 1.80 | Northeastern corner of the apsidal Chaitya. Obv: Three-arched hill with crescent; thin river line close to the periphery. Rev: Ujjain symbol with double circles with a central pellet. |
| KGH - 042 | Yajña Śri Sātakarṇi | Lead alloy, Circular | 1.80 | Northeastern corner of the apsidal Chaitya.  
Obv: Three-arched hill with a fairly thick base line with crescent at the top with its horns slightly turned towards 1 o’clock.  
Legend: Clockwise; due to ill casting two letters are unusually large; Begins at 7 o’clock and abruptly ends at 12 o’clock. Reads *Ya jna Si ri*  
Rev: Ujjain symbol with single circle and central bulged pellet. |
| --- | --- | --- | --- | --- |
| KGH - 043 | Śiri Puḷumāvi | Lead, Circular | 1.80 | Northeastern corner of the apsidal Chaitya.  
Obv: Thick lined three-arched symbol with crescent. Prominent base line for hillock; the distal ends are of triangular head. River line smudged into the periphery. When compared to the characters of the legend, the symbol is smaller in size.  
Legend: Clockwise; begins at 11 o’clock and ends at 4 o’clock. *Si ri pu lu*  
Rev: Ujjain symbol with double circle and dot. |
| KGH - 044 | Siva Śiri Puḷumāvi | Lead, circular | 1.80 | Obv: Thick lined, three-arched hill symbol with crescent. Prominent base line for hillock; the distal ends are of triangular head. River line slightly curved downwards. When compared to the characters of the legend, the symbol is smaller in size.  
Legend: Clockwise; begins at 9 o’clock and ends at 5 o’clock. *Si va Si ri pu lu*  
Rev: Prominent Ujjain symbol with double circle and dot. |
<table>
<thead>
<tr>
<th>Coin</th>
<th>Material</th>
<th>Lead, Circular</th>
<th>Weight</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGH - 045</td>
<td>Sātakarṇi (Pl. CLX.6)</td>
<td>Lead, Circular 28, 10</td>
<td>1.80</td>
<td>Northeastern corner of the apsidal Chaitya. Obv: Thick lined, three-arched hill symbol with crescent. Prominent base line for hillock, the distal ends are of triangular head. Riverline slightly curved downwards. When compared to the characters of the legend, the symbol is smaller in size. Legend: Anticlockwise, begins at 4 o’clock and ends at 5 o’clock. <strong>Ra jīnī Sī ri Sātakarṇi sa</strong></td>
</tr>
<tr>
<td>KGH - 046</td>
<td>Sātakarṇi</td>
<td>Lead, Circular 28, 10</td>
<td>1.80</td>
<td>Mahāstūpa, below railing. The symbol and legend is struck to the right side of coin and the left side is worn out. Obv: Three-arched hill slightly stretched with river line at the base. Crescent worn out. Legend: Anticlockwise; begins at 11 o’clock and ends at 5 o’clock. Reads: <strong>Sātakarṇi sa</strong></td>
</tr>
<tr>
<td>KGH - 047</td>
<td>Pulumāvi</td>
<td>Lead, Oval 19, 2</td>
<td>1.80</td>
<td>Northeastern corner of the apsidal Chaitya. Mis - struck coin blank between 9 o’clock to 12 o’clock. Obv: Clumsy. Three-arched hill with prominent base line with left distal end with triangular head. The crescent atop is smudged. Legend: Clockwise; the legend is smudged between 9 and 12 o’clock and between 4 and 7 o’clock. The extant legend reads: <strong>Sī. pu lāmā vi sa</strong></td>
</tr>
</tbody>
</table>

Rev: Prominent Ujjain symbol with only two lobes struck with double circle and dot.
Excavations at Kanaganahalli (Sannati)

KGH - 048  Siva Śiri Pulumāvi  
(Pl. CLXI.4)  
Lead, Circular  
19, 2  
1.80  
Northeastern corner of the apsidal Chaitya. 
Obv: Diagonally struck symbol tilted slightly between 12-1 o’ clock. 
Three-arched hill with crescent. Thick base line. Riverline slightly curved and incomplete. 
Legend: Clockwise, smudged between 4 and 8 o’clock. The extant between 9 to 4 o’ clock reads 
Ra jña Siva Śiri Pu lu  
Rev: Ujjain symbol with only two lobes with double circle and dot. Third partially seen in the periphery.

KGH - 049  Yajña Śri Sātakarni 
(Pl. CLXI.2)  
Lead, Circular  
15, 2  
1.80  
Northeastern corner of the apsidal Chaitya. 
Obv: Faint impression of stretched, three-arched hill with crescent. Prominent base line with distal ends with triangular heads. The river line merged into the periphery. 
Legend: Clockwise; extant between 11 o’ clock to 3 o’ clock. Reads 
Śī ri Yajna  
Rev: Two lobes of worn out Ujjain symbol with double circle and dot.

KGH - 050  Indistinct  
Lead, Circular  
18, 4  
1.80  
Northeastern corner of the apsidal Chaitya. 
Obv: Indistinct. 
Rev: Faint impressions of Ujjain symbol.

KGH - 051  Śri Sātakarni  
Lead, Circular  
16, 2  
1.80  
Northeastern corner of the apsidal Chaitya. 
Obv: Three arched hill with crescent. Faint river line at the base. 
Legend: Anticlockwise; extant between 4 o’ clock to 1 o’ clock. Legend between 12 o’ clock to 6 o’ clock not imprinted due to ill casting. Reads 
Ra jno.. blank (ni)  
On the basis of the top serif of the letter ni the coin is assigned to king Śri Satakarni. 
Rev: Prominent impression of unusually large Ujjain symbol. While one lobe is clear the other two are struck near the periphery.
<table>
<thead>
<tr>
<th>Coin No.</th>
<th>Description</th>
<th>Material</th>
<th>Weight</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGH - 053</td>
<td>Yajña Śātakarnī</td>
<td>Lead, Circular</td>
<td>17, 2</td>
<td>Northeastern corner of the apsidal Chaitya. The otherwise circular coin has assumed pear shape due to edging and mutilating the legend. Legend: Clockwise; extant legend begins at 11 o’clock and ends at 5 o’clock. Reads: <em>Ya jna Sā ta kam</em> Rev: Prominently struck Ujjain symbol with single circle and central bulged pellet and parts of the other two.</td>
</tr>
<tr>
<td>KGH - 054</td>
<td>Śātakarnī</td>
<td>Lead, Circular</td>
<td>16, 2</td>
<td>Northeastern corner of the apsidal Chaitya. Obv: Three-arched hill with crescent almost touching the periphery. The river line is slightly away from the base line. Legend: Clockwise. The edging of the coin has lost ¼ th of the legend along the periphery, Begins at 8 o’clock and ends at 7 o’clock; reads <em>Ra jño Si ri Sā ta kam ni sa</em> Rev: Prominent large Ujjain symbol worn out; single circle with pellet.</td>
</tr>
</tbody>
</table>
Excavations at Kanaganahalli (Sannati)

<table>
<thead>
<tr>
<th>KGH - 055</th>
<th>Puļumāvi (Pl.CLXI.7)</th>
<th>Lead, Circular 17, 2</th>
<th>1.80</th>
</tr>
</thead>
</table>

North eastern corner of the apsidal Chaitya.
Obv: Three-arched hill with crescent slightly away from the hill. Wavy base line and a wavy river line. The characters of the legend are larger than the symbol.
Legend: CW; the legend between 7 o’clock to 12 o’clock smudged and not clear; the extant legend between 1 o’clock to 3 o’clock reads
(Si) (ri) pu du
Rev: Prominent Ujjain symbol struck to periphery. The central pellet of one of the single circles is smudged.

<table>
<thead>
<tr>
<th>KGH - 056</th>
<th>Sātakārṇi</th>
<th>Potin, Circular 19, 2</th>
<th>1.80</th>
</tr>
</thead>
</table>

Northeastern corner of the apsidal Chaitya. The coin is slightly ovalish due to its pressing from sides when it was still wet.
Obv: Three-arched hill with crescent and straight river line mis struck slightly to left of the coin.
Legend: Clockwise; begins at 8 o’clock and ends at 7 o’clock. The letters are of medium size and in Rajño somewhat thinner in comparison to the other letters. Reads
Ra jño Si. Kam ni sa
| KGH - 057 | Siva Śīri Pulumāvi (PL.CLXI.6) | Lead, Circular 17, 2 | 1.80 | Northeastern corner of the apsidal Chaitya. The coin is slightly mutilated at the periphery between 12 o’clock and 3 o’clock. Obv: Bold, three-arched hill with crescent and a prominent base line with its two distal ends with triangular head. Straight river line. The horns of the crescent are more than half of a circle. Legend: Clockwise; begins at 8 o’clock and ends at 7 o’clock. The extant legend reads: *Ra jno Śi (va) (si) (ri) Pu (lu) (mā) vi sa* The letters are bold and well written. Since the periphery is damaged as earlier some of the letters like *va in Siva, Śi ri of Śīri. Lu, mā* and their serifs are missing. Rev: Prominent mutilated Ujjain symbol with double circle and central pallet. |
| KGH - 058 | Siva Śīri Pulumāvi | Potin, Circular Mutilated | 1.80 | Northeastern corner of the apsidal Chaitya. Mutilated between 6 and 9 o’clock in which the legend is lost in the periphery. Due to the softness of the metal the coin is somewhat ovalish. Obv: Three-arched hill with crescent in the centre with a firm base line, the ends of which are triangular headed. Legend: Clockwise. The extant legend from 9 o’clock to 2 o’clock reads: *(Ra) Jño Śi (va) (si) (ri) Pu* Rev: Mis-struck Ujjain symbol with a single circle with a central pellet. |
Excavations at Kanoganahalli (Sannati)

**KGH - 059**  
Śrī Sātakarni Potin, Circular 16, 2  
1.80  
Northeastern corner of the apsidal Chaitya.  
Obv: Three-arched hill with crescent and river line.  
Legend: Clockwise; begins at 8 o’clock and ends at 7 o’clock. Due to edging of the coin, the top serifs and some letters are mutilated. Reads  
Ra Jno (Si) (ri) (Sii) (ta) Kam ni (sa).  
Rev: Bold Ujjain symbol; two are set to periphery and one is clearly visible.

**KGH - 060**  
Sātakarni Potin, Ovalish 21, 5  
1.80  
Northeastern corner of the apsidal Chaitya.  
Obv: Three-arched hill stretched along with crescent.  
Legend: Anticlockwise, reads:  
. . Sā . ka ni  
Rev: Distorted Ujjain symbol with single circle and a central pellet.

**KGH - 061**  
Śrī Sātakarni Potin, Circular 20, 4  
1.80  
Northeastern corner of the apsidal Chaitya.  
Obv: Three-arched hill with crescent and river line.  
Legend: Begins at 7 o’clock and ends at 4 o’clock. Only the vertical limbs of the mutilated letters are visible. Extant legend reads:  
(Ra ) (jno) (Si) ri (Sā) ka ni sa  
Rev: Large well struck Ujjain symbol. Double circles with a central pellet are prominent.
| KGH - 062 | Sātakarni (Pl. CLIX. 5) | Copper, Mutilated, Square | 1.98 | Southeastern corner of ayaka below pradakṣhīna. Square copper coin appears to be restruck. Obv: Three-arched hill with traces of ill-struck crescent atop with river line at the base. Legend: Anticlockwise. Due to improper casting only the top serifs of letter śa, ta and ka are visible, letter ni is prominent. Rev: Two symbols of faint Ujjain over struck diagonally with triangular headed standard in circular punch are interesting. The force of punch has split the coin at the periphery. |
| KGH - 063 | Indistinct | Copper, Circular | Surface | Unstruck coin. Highly worn out. |
| KGH - 066 | Śri Sātakarni | Lead, Circular | 1.15 | Southeast of southern entrance. Well struck coin, the symbols and legend are worn out due to usage. Obv: Three arched hill with crescent and river line. Legend: Anticlockwise begins at 3 o’clock and ends at 5 o’clock; the extant legend reads: Ra jo Si ri Sā.. Ka ni sa. Rev: Well struck Ujjain symbol with double circle and pellet; the distal ends of two circles are worn out. |
Excavations at Kanaganahalli (Sannati)

KGH - 067  Maharathi Siri
Sātavāhana
(Pl.CLIX.2)
Lead, Circular
23, 10
1.45 South east of southern entrance. Wellstruck large circular, partially mutilated coin.
Obv: Three-arched hill with crescent and river line, inverted triangular headed standard inserted into the horns of the crescent and a nandi-pāda to the right of the crescent. The river line merges with the periphery; the triangular standard symbol is cracked.
Legend: Clockwise begins at 7 o’clock and ends at 4 o’clock; reads: Mahāra thī sa Sī rī Sā tā vā ha (na) sa.
Rev: Ujjain symbol set in a double line square.

KGH - 068  Indistinct
Lead, Mutilated
17, 2
1.30 West of southern entrance.
Obv: Three-arched hill with crescent and a straight river line merged into the periphery.
Legend: Clockwise, is lost due to edging of the coin.
However letter sa at 10 o’clock is visible.
Rev: A large Ujjain symbol, a double circle and dot. Except one circle, the rest are partially struck.

KGH - 069  Śri Sātakarṇī
Potin Circular
16, 2
1.35 Near southern chandrasilā.
Obv: Three-arched hill with a crescent.
Legend: Anticlockwise; the river line and left of the coin between 4 o’clock to 3 o’clock smudged at the periphery. The extant legend between 2 o’clock to 6 o’clock reads Sī (ri) sa .ka ni.
Rev: Faint Ujjain symbol.

KGH - 070  Indistinct
Potin, Mutilated
15, 2
1.56 North of western entrance. Mutilated coin.
Obv: Three-arched hill with crescent at the top and river line.
Legend: Not clear.
Rev: Ujjain symbol slightly stretched.
<table>
<thead>
<tr>
<th>Coin Code</th>
<th>Grade</th>
<th>Material</th>
<th>Shape</th>
<th>Weight</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGH - 071</td>
<td>Inscribed</td>
<td>Potin, Mutilated</td>
<td>15, 2</td>
<td>1.63</td>
<td>Near western entrance. The left of the coin is mutilated. Obv: Three-arched hill with crescent; no river line. Legend: Clockwise; only letter sa is discernible. Rev: Large Ujjain symbol. Only two distals are seen.</td>
</tr>
<tr>
<td>KGH - 072</td>
<td>Indistinct</td>
<td>Potin, Circular</td>
<td>11, 2</td>
<td>1.30</td>
<td>North east of eastern entrance. Obv: Worn out three-arched hill and river line. The legend and the crescent of the symbol are smudged in the periphery. Rev: Single circle with a central pellet of Ujjain symbol.</td>
</tr>
<tr>
<td>KGH - 073</td>
<td>Inscribed (Pl.CLVIII.6)</td>
<td>Copper, Square</td>
<td>19x19, 4</td>
<td>1.70</td>
<td>Near southwest corner of apsidal Chaitya. Obv: Worn out symbol of three-arched hill with crescent and river line. Legend: Clockwise; only Sa of the legend at 10 o’ clock visible. Rev: Faint Ujjain symbol with central large pellet in the circle is visible.</td>
</tr>
<tr>
<td>KGH - 074</td>
<td>Indistinct (Pl.CLVIII.7)</td>
<td>Copper, Square</td>
<td>9x9, 2</td>
<td>1.60</td>
<td>West of southern chandrasilā. Obv: Three-arched hill with crescent and river diagonally struck. Rev: Ujjain symbol with only two circles with pellet are seen; near one of the circles the symbol of sun (?) is struck.</td>
</tr>
<tr>
<td>KGH - 079</td>
<td>Indistinct</td>
<td>Copper, Square</td>
<td>12x12, 2</td>
<td>1.20</td>
<td>Northeast of eastern āyaka. The mis-struck coin does not have any clear impressions.</td>
</tr>
</tbody>
</table>
Excavations at Kanaganahalli (Sannati)

<table>
<thead>
<tr>
<th>Coin Code</th>
<th>Description</th>
<th>Metal</th>
<th>Weight</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>KGH - 081</td>
<td>Indistinct</td>
<td>Silver, square 12x13, 4</td>
<td>2.20</td>
<td>Punch marked coin southeast of southern entrance ayaka. Obv: (1) Six spoked wheel at top right corner, (2) Humped bull facing right within a rectangular frame to the left of the wheel, (3) Sun, (4) Moon and (5) Peacock facing left over a three-arched hill along the bottom border. Rev: Diagonally struck. Caduceus symbol. This is a very significant coin and the only silver punchmarked coin retrieved from Kanaganahalli-Sannati area so far and appears to provide a firm basis for dating the habitation at Kanaganahalli (Sannati) area to the pre-Asokan-Mauryan context. The Caduceus symbol, especially occurring as a single reverse symbol, appears on the coins of silver and copper punch-marked coins of Mauryan federal states during the pre-Asokan times and continues during Asokan and post-Asokan period. Similarly, the peacock on hill appears as a fifth symbol on the obverse in the same chronological horizon [cf: coin Nos.5, 17, 83, 27, 48, 72, 73, 84, 85, 116, 125, 143, 185, 186 and 219] &amp; No.138 of Bhanu Agarwal &amp; Subas Rai, Indian Punch Marked Coins, Kanishka Publishers and Distributors, Delhi, 1994]. The symbols also appear on the coins discovered at Amaravati, Karimnagar, Gulbarga, Raichur, etc. the core zone of Sātavāhana empire comprising Asika-Mūlaka-Āṣmaka a region [cf: Pl.45S of Savitha Sharma, Early Indian Symbols: Numismatic Evidence, Delhi, 1990]</td>
</tr>
<tr>
<td>Coins</td>
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<tr>
<td>KGH - 082</td>
<td>Indistinct</td>
<td>Lead, Circular 22, 8</td>
<td>0.85</td>
<td>North of apsidal Chaitya. Obverse: Three-arched hill. Rev: Details are lost.</td>
</tr>
<tr>
<td>KGH - 083</td>
<td>Śri Sātakarṇi (Pl. CLX.7)</td>
<td>Lead, Circular 18, 6</td>
<td>0.95</td>
<td>Near northern entrance. Obv: Well struck three-arched hill with crescent. Legend: Indistinct. And river line. Legend: Anticlockwise; the legend between 4 o’clock to 8 o’clock smudged. The extant legend reads Ra jno Śi ri Sāta. Could be that of Sātavāhana or Sātakarṇi. Rev: Impression of Ujjain symbol with only two distals clearly visible and the other two smudged to periphery.</td>
</tr>
<tr>
<td>KGH - 084</td>
<td>Śri Sātakarṇi (Pl. CLX.8)</td>
<td>Lead, Circular 18, 4</td>
<td>0.90</td>
<td>North of northern entrance. The mis-struck coin has lost its legend along the left periphery. Obv: The symbol of three-arched hill, crescent and river line struck to more left of the coin. The distal ends of the base line are with nail heads. River line is curved. Legend: Anticlockwise; begins at 3 o’clock and ends at 5 o’clock; reads: Jno Śi ri Sā ta kam ni (sa) Rev: Well struck Ujjain symbol with double circle and central pellet. The symbol is struck to the right of coin.</td>
</tr>
<tr>
<td>KGH - 085</td>
<td>Śri Sātakarṇi (Pl. CLX.9)</td>
<td>Lead, Circular 23, 8</td>
<td>0.28</td>
<td>Near eastern chandrasīlā. Obv: Three-arched hill with crescent atop and a river line below. Legend: Anticlockwise; begins at 4 o’clock and ends at 5 o’clock; reads Ra jno Śi ri Sā ta kam ni sa Rev: Prominent Ujjain symbol with double circle and pellets and Śrivatsa intersecting the distals.</td>
</tr>
</tbody>
</table>
Excavations at Kanaganahalli (Sannati)

<table>
<thead>
<tr>
<th>KGH - 086</th>
<th>Sri Sātavāhana (Pl. CLIX.1)</th>
<th>Lead, Circular 25,12</th>
<th>0.48</th>
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<tr>
<td></td>
<td>South of western entrance.</td>
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<tr>
<td></td>
<td>Obv: Three-arched hill with</td>
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<tr>
<td></td>
<td>crescent atop and a wavy</td>
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<td></td>
<td>river line below.</td>
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<tr>
<td></td>
<td>Legend: Anticlockwise;</td>
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<tr>
<td></td>
<td>begins at 11 o’ clock and</td>
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<tr>
<td></td>
<td>ends at 1 o’ clock; reads</td>
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<tr>
<td></td>
<td>Ra jno Sī ri Sā da vā ha na sa</td>
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<tr>
<td></td>
<td>The impression of a heavy</td>
<td></td>
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<tr>
<td></td>
<td>ledge is seen along the</td>
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<td></td>
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<tr>
<td></td>
<td>bottom of the coin.</td>
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<tr>
<td></td>
<td>Rev: Well-struck Ujjain</td>
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<tr>
<td></td>
<td>symbol with single circle</td>
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<tr>
<td></td>
<td>and a pellet and the</td>
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<tr>
<td></td>
<td>symbol is struck to a side</td>
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<td></td>
<td>leaving 3/4th of the</td>
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<td></td>
<td>space blank. One of the</td>
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<tr>
<td></td>
<td>distals at the bottom</td>
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<tr>
<td></td>
<td>has an improperly struck</td>
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<tr>
<td></td>
<td>sun.</td>
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</tbody>
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<thead>
<tr>
<th>KGH - 087</th>
<th>Śri Sātakarṇi</th>
<th>Lead, Circular 25, 8</th>
<th>0.40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Near northern entrance.</td>
<td></td>
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<tr>
<td></td>
<td>The well struck coin with</td>
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<tr>
<td></td>
<td>smudged periphery</td>
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<tr>
<td></td>
<td>Obv: The symbol of three-</td>
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<tr>
<td></td>
<td>arched hill, crescent</td>
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<td></td>
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<tr>
<td></td>
<td>and river line struck</td>
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<td></td>
<td>to more upper side of</td>
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<td></td>
<td>the coin. The distal</td>
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<td></td>
<td>ends of the base line</td>
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<td></td>
<td>are of nail heads.</td>
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<tr>
<td></td>
<td>River line is wavy.</td>
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<td></td>
<td>Legend: Anticlockwise;</td>
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<tr>
<td></td>
<td>begins at 3 o’ clock</td>
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<tr>
<td></td>
<td>and ends at 6 o’ clock;</td>
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<td></td>
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<tr>
<td></td>
<td>reads (Ra) (Jno) Si ri Sā ta kam ni</td>
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<tr>
<td></td>
<td>Rev: Well struck Ujjain</td>
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<tr>
<td></td>
<td>symbol with double circle</td>
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<tr>
<td></td>
<td>and central pellet.</td>
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<tr>
<td></td>
<td>The symbol is struck,</td>
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<tr>
<td></td>
<td>mutilated with a crack</td>
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<tr>
<td></td>
<td>line.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>KGH - 088</th>
<th>Śri Sātakarṇi (Pl. CLX.10)</th>
<th>Lead, Circular 25, 10</th>
<th>0.50</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Near eastern chandaśila.</td>
<td></td>
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<tr>
<td></td>
<td>Obv: Three-arched hill with</td>
<td></td>
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<tr>
<td></td>
<td>crescent atop and a wavy</td>
<td></td>
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<tr>
<td></td>
<td>river line below.</td>
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<tr>
<td></td>
<td>Legend: Anticlockwise;</td>
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<tr>
<td></td>
<td>begins at 2 o’ clock and</td>
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<tr>
<td></td>
<td>ends at 6 o’ clock; reads</td>
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<tr>
<td></td>
<td>Si ri Sā ta kam ni</td>
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<tr>
<td></td>
<td>Rev: Prominent Ujjain symbol</td>
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<tr>
<td></td>
<td>with double circle and</td>
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<tr>
<td></td>
<td>pellets and two distals</td>
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<tr>
<td></td>
<td>are slightly smudged and</td>
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<tr>
<td></td>
<td>part of the sun symbol.</td>
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</tr>
<tr>
<td>KGH - 089</td>
<td>Siva Sri Pulumävi</td>
<td>Lead, Circular 17, 2</td>
<td>0.45</td>
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<tr>
<td>KGH - 090</td>
<td>Indistinct</td>
<td>Lead, Circular 18, 4</td>
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<tr>
<td>KGH - 091</td>
<td>Sri Sātakarni</td>
<td>Lead, Circular 19, 6</td>
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<td>Śrī Sātakarni</td>
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<tr>
<td>KGH - 093</td>
<td>Indistinct</td>
<td>Lead, Circular 17, 2</td>
<td>Surface</td>
</tr>
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<tr>
<td>KGH - 094</td>
<td>Indistinct</td>
<td>Lead, Circular 18, 4</td>
<td>0.38</td>
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<tr>
<td>KGH - 097</td>
<td>Śri Sātakarni</td>
<td>Lead, Circular 19, 6</td>
<td>0.18</td>
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<tr>
<td>KGH - 098</td>
<td>Śri Sātakarni</td>
<td>Lead, Circular 25, 8</td>
<td>1.95</td>
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<tr>
<td>KGH - 099</td>
<td>Śri Sātakarni</td>
<td>Potin, Circular 20, 4</td>
<td>0.25</td>
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<tr>
<td>KGH - 100</td>
<td>Śri Sātakarṇi</td>
<td>Lead</td>
<td>Circular</td>
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<tr>
<td>KGH - 101</td>
<td>Indistinct</td>
<td>Potin, Circular</td>
<td>0.35</td>
</tr>
<tr>
<td>KGH - 102</td>
<td>Śri Sātakarṇi</td>
<td>Potin, Circular</td>
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<tr>
<td>KGH - 103</td>
<td>Śri Sātakarṇi</td>
<td>Potin, Circular</td>
<td>0.30</td>
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Excavations at Kanaganahalli (Sannati)

<table>
<thead>
<tr>
<th>KGH - 104</th>
<th>Śri Sātakarṇi</th>
<th>Potin, Circular 18, 2</th>
<th>0.28</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Southern entrance. Slightly worn out coin with the legends between 4 o' clock to 1 o' clock smudged. Obv: Three-arched hill with crescent atop and a straight river line Legend: Anticlockwise; reads: Rajno Si (ri) Sā ta kam ni sa Worn out slightly. Rev: Ujjain symbol with double circle and a pellet. One is into the periphery.</td>
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<tr>
<th>KGH - 105</th>
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<th>Potin, Circular 20, 2</th>
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<tr>
<th>KGH - 106</th>
<th>Śri Sātakarṇi</th>
<th>Lead, Circular 25, 8</th>
<th>0.30</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Near southern āyaka. Slightly irregular in shape and the details are struck slightly towards left. Obv: Three-arched hill with crescent and a straightish river line. Legend: Anticlockwise; begins at 3 o' clock and ends at 5 o' clock; reads (Ra) (jno) Si (ri) Sā ta kam ni sa Rev: Ujjain symbol with double circle and dot; Symbol of srivatsa alternates. One of the distals of the Ujjain symbol is worn out.</td>
<td></td>
</tr>
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<table>
<thead>
<tr>
<th>KGH - 107</th>
<th>Sātakarṇi</th>
<th>Potin, Circular 15, 1</th>
<th>1.28</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Near southeastern apsidal Chaitya entrance. Obv: Mis-structured coin with the legends between 4 o’ clock to 1 o’ clock smudged; only two orbs of lower hillock seen; crescent shifts angularly towards 11 o’ clock. River line missing. Legend: Anticlockwise; reads: Sā ta kam ni Worn out slightly. Rev: Ujjain symbol with double circle and a pellet. One distal has sun symbol.</td>
<td></td>
</tr>
<tr>
<td>Coin Code</td>
<td>Dynasty/Name</td>
<td>Material</td>
<td>Diameter</td>
</tr>
<tr>
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<td>------------</td>
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</tr>
<tr>
<td>KGH-109</td>
<td>Indistinct (Pl.CLIX.6)</td>
<td>Lead, Circular 22, 14</td>
<td>1.90</td>
</tr>
<tr>
<td>SAN-8</td>
<td>Śri Sātavāhana (Pl.CLIX.3)</td>
<td>Lead, Circular 14, 2</td>
<td>1.00</td>
</tr>
<tr>
<td>SAN-13</td>
<td>Indistinct</td>
<td>Potin, 19, 2</td>
<td>1.00 m.</td>
</tr>
<tr>
<td>SAN-14</td>
<td>Indistinct</td>
<td>Potin, Circular 22, 2</td>
<td>1.00</td>
</tr>
<tr>
<td>SAN - 15</td>
<td>Satakarni</td>
<td>Lead, circular 22, 2</td>
<td>1.00 m.</td>
</tr>
<tr>
<td>SAN - 16</td>
<td>Indistinct</td>
<td>Lead, Circular 15, 2</td>
<td>1.00</td>
</tr>
<tr>
<td>SAN - 17</td>
<td>Indistinct</td>
<td>Lead, Circular 12, 1</td>
<td>1.00</td>
</tr>
<tr>
<td>SAN - 22</td>
<td>Indistinct</td>
<td>Lead, Circular 12, 2</td>
<td>1.20</td>
</tr>
<tr>
<td>SAN - 23</td>
<td>Indistinct</td>
<td>Lead, Circular 18, 6</td>
<td>1.20</td>
</tr>
<tr>
<td>SAN - 32</td>
<td>Indistinct</td>
<td>Lead, Circular 14, 4</td>
<td>1.50</td>
</tr>
<tr>
<td>SAN - 33</td>
<td>Śri Satakarni (?)</td>
<td>Lead, Circular (mutilated) 16, 2</td>
<td>1.57</td>
</tr>
<tr>
<td>SAN - 35</td>
<td>Mahārathi Siri Sātavāhana (Pl.CLIX.4)</td>
<td>Lead, Circular, 31, 28</td>
<td>1.95</td>
</tr>
<tr>
<td>SAN - 41</td>
<td>Indistinct</td>
<td>Lead, Circular 17,4</td>
<td>1.57</td>
</tr>
<tr>
<td>SAN - 58</td>
<td>Indistinct</td>
<td>Lead, Oval 23, 8</td>
<td>2.40</td>
</tr>
<tr>
<td>SAN - 59</td>
<td>Indistinct</td>
<td>Copper, Square 15x14,2</td>
<td>2.45</td>
</tr>
<tr>
<td>SAN - 68</td>
<td>Indistinct</td>
<td>Lead, Circular 18,4</td>
<td>2.73</td>
</tr>
</tbody>
</table>

**TYPOLOGICAL CLASSIFICATION OF THE COINS**

| I | Silver PMC | 81 | 1 |
| II | Die-struck coin | 12, 20, 28, 33, 35, 62, 73, 74, 78, 79, 80, 123 | 12 |
| III | a. Siri Sātavāhana | 110 | 1 |
| III | b. Maharathi Siri Sātavāhana | 67, 120 | 2 |
| III | c. Rajño Siri Sātavāhanasa | 38, 64, 86 | 3 |
| IV | Siri Sātakarṇi | 3, 6, 7 (elephant type), 9, 11, 16, 31, 36, 39, 46, 60, 69, 83, 88, 91, 96, 97, 99, 107, 108, 109 (bull), 113, 114 (bull), 118 (lion), 124 (lion) | 25 |
| V | Rajño Siri Sātakarnisa | 1, 2, 4, 5, 8, 13, 15, 18, 21, 22, 24, 25, 29, 30, 32, 34, 37, 45, 51, 54, 56, 59, 61, 66, 84, 85, 87, 89, 92, 95, 98, 100, 102, 103, 104, 106, 119 | 37 |
| VI | Siva Siri Pulumāvi | 43, 44, 47, 48, 52, 55, 57, 58, | 8 |
| VII | Yajna Sri Sātakarṇi | 40, 42, 49, 53 | 4 |
Excavations at Kaneganahalli (Sannati)

<table>
<thead>
<tr>
<th>VIII</th>
<th>Medieval</th>
<th>26, 75, 76</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX</td>
<td>Indistinct</td>
<td>10, 14, 17, 19, 23, 27, 41, 50, 63, 65, 68, 70, 71, 72, 77, 82, 90, 93, 94, 101, 105, 111, 112, 115, 116, 117, 121, 122, 125</td>
<td>29</td>
</tr>
</tbody>
</table>

**TOTAL**  
125

Note: KGH - Kaneganahalli  
SAN - Sannati (Ranamaṇḍala)
REFERENCES

(Chapter-VII)

COINS


6. The Naneghat inscription of queen Nagamnika and the Kanheri dated inscriptions of the 16th year of Gautamiputra Yajna Sri Satakarni are the other two records referring to the usage and estimation of currency in terms of Karshapanaś. (I.K. Sarma, *op. cit.* p. 60.)


Punch-marked coins and Die-struck coins
1: Punch-marked coin; 2-8: Die-struck copper coins
1 - 6: Coins of Siri Sātavāhana
PLATE CLX

1 - 10: Coins of Siri Sātakarṇi
1 - Coin of Sri Pulumavi; 4-7 Coins of Siva Siri Pulumavi and
2-3 & 8-9 Coins of Yajña Sri Satakarni
The development of trade routes in the Indian subcontinent had its beginning probably during the Neolithic - Chalcolithic period. Marshall had earlier suggested that the gold for the ornaments of Mohenjo-daro were mined in the Deccan. Subsequent archaeological explorations and excavations followed by other scientific investigations, especially in the Andhra-Karnataka area, have brought to light a number of potential sites yielding precious raw materials including gold and copper, besides semiprecious stones. The sites in Gulbarga, Raichur, Dharwar and Chitradurga districts of northern Karnataka which have clusters of Neolithic settlements representing various stages of evolution, are specially noteworthy. Interestingly, at some places old mine workings have also been found. The evidence of interaction between these areas is characterised by the striking similarity in the wares and shapes besides the intrusion and spread of certain specific wares like the white painted black and red ware, Savalda ware, etc. in varying quantities, from the Chalcolithic cultures of adjoining Maharashtra. However further research may perhaps throw more light on these aspects.

During the period from about 1000 BC to 200 BC which broadly covers the Iron Age and the first phase of the Early Historical Period, the communication routes in the peninsula become more and more clear. This period witnessed almost all over India, a substantially agriculture dependant village life, marked by the large scale introduction and use of iron and culminating in certain areas in what has been generally described as the “second urbanisation / urban revolution”.

On the political plane, this period witnessed the clustering and amalgamation of diverse geographical units into ‘Shodasa Mahajanapadas’ and the subsequent inclusion of a large number of such principalities of subordinative or independent status. This was a parallel development to the number of regions previously peripheral to the developments in establishing trade and political centres in north India also. As per the requirements of the time, several of these centres were fortified and brisk constructional activities in stone and brick media were initiated. In the cultural plane, there was a widespread religious renaissance exemplified more significantly and in an emphatic manner in
the heterodox non-brahmanical religions, especially in the doctrines of Gautama, the Buddha. The penetration of these developments into the interior south along the trade routes is a significant pointer. Archaeological evidences in the form of profuse structural activity, standard currency of the Magadha and other janapadas, occurrence of the sophisticated northern black polished ware and Asokan inscriptions highlight these developments.

The knowledge of iron and further technological changes in the wake of this metal facilitated easy manufacture of tools and implements which catered to the progressive technological needs of the times, especially in the fields of agriculture and warfare. This active semi-urbanisation by the iron-age culture in the Deccan coincided with the black-and-red ware culture of central India and also the painted grey ware of Indo-Gangetic plains. With the formation of 16 mahā-janapadas, the trade contacts throughout the length and breadth of the country got channelised with a barter-cum-currency system in the interior, semi-urban or rural hinterlands and profuse use of currency in the form of punch marked coins in flourishing urban centres that sprang up along the arterial lines of communication. This phenomenon percolated down to the Mauryan period and beyond. The finding of punch marked coins from Chandravalli, Maski, Vadagaon-Madhapur, Banavasi and Sannati excavations and as stray surface findings at Halavagilu, Bidar, Gulbarga and Raichur areas, including a chance discovery of a hoard containing over 5000 silver punch-marked coins at Chiksindogi (Taluk Koppal in erstwhile district of Raichur) clearly indicates that there was an established active inland trade route in Karnataka. The hoard of Chiksindogii assumes greater significance for its container of copper bearing a c.2nd-3rd century AD inscription reading Chantasa (of Chanta-Santa transformed into Chamta-the owner of the copper jar).

The distribution pattern of the punch marked coins in peninsular India indicates that their concentration is more in adjacent states of Tamil Nadu, Andhra Pradesh and Kerala and far and fewer in Karnataka. In spite of this scarcity, the occurrence of punch marked coins in the stratigraphic context at Maski, Vadagaon-Madhapur and Sannati cannot be ignored.

The sculptural art of Kanaganahalli stūpa frequently represents scenes related to travel on land routes. Decorated chariots, caparisoned horses and elephants and a variety of palanquins (śibikās) are often depicted. Even camels and well-bred bullocks are delineated. The frequency of depiction of both yoked and unyoked bullock-carts, differing in no way from their modern day prototypes, clearly indicates that they were extensively used as means of transportation. Interestingly, many of the Chhāyā-pratimās found in
and around Sannati, which were raised in honour of the deceased merchants from various places, contain the depictions of well-furnished and decorated bullock carts drawn by single or double bulls. Caparisoned horses and elephants, though forming part of the army, appear as constant accompaniments of kings and noblemen in their long marches. Chariots in the depiction are drawn by as many as four swift moving horses and two camels. Quite significantly one of the dome-slabs of the Mahāchaitya at Kanaganahalli has the depiction of a merchant Mūrakasēṭhi hailing from the Chedi country (Chedi vaniyo) (Pl.CXLII.3).

The megalithic culture is mainly associated with the development of the art of prospecting, extracting and bulk production of various implements, chiefly of agriculture and warfare. However, it had yet another important cultural component in the form of lapidary industry which too had a direct bearing on trade. In addition to these, management of surplus agricultural produces essentially presupposes an established administrative set up in the society carefully attending to the above new need-based ramification. In this context, it is worthwhile to examine the fact that Aśōka has left behind him as many as two sets of major and 17 minor rock edicts in the south and south western Deccan. The concentration of these edicts implies two interesting points. First, the Raichur doab and its peripheral zones happen to be the most significant corridor of communication between the northern Deccan on the one hand and the rich hinterlands of the far south on the other. It further indicates that the monarch was fully conscious of the Geo-political importance of the area. In the Rock Edict-XIII Aśōka refers to the people of the south, with all of whom he was on friendly terms, implying thereby that the rest of the people of the Deccan and far south were subjects of his Empire and were controlled from Suvarnagiri. Secondly, the Raichur doab and its periphery must have been known to Aśōka as a region which was potentially very rich not only in agricultural produce but also in mineral wealth. In this context, it is pertinent to note that Kautilya in his Arthasāstra refers to the existence of communication of the north with Dakshināpatha for the sake of diamond and gold mines, pearls and conch, fisheries and numerous opulent marts. Kautilya's statement has amply been proved by the archaeological discoveries of traces of working of goldmines at Hatti (Raichur district), Maski and in Cuddapah and Kurnool districts. Marshall had suggested the gold used for the gold ornaments of Mohenjo-Daro was mined in the Deccan. The exploitation of the gold mines seems to have been in vogue even from Neolithic times, as evidenced by the Neolithic sites in Karnataka clustering around the hollow gold bands industry in the site at Tekkalakota phase-I. Besides rich deposits of iron have been found between Krishna
Excavations at Kanoganahalli (Sannati) and Tungabhadra rivers and precious stones were plentiful in the alluvium of the river Krishna. Thus Aśoka's stress on the region as indicated by a heavy concentration of his edicts may have been inspired by the material richness of the region. As suggested by Kosambi the expansion of the Aśokan Empire towards the Deccan and South was a measure dictated by the requirements of the Mauryan treasury as also the armoury. As a sequel at the very heart of the region Aśoka had to develop and maintain one of his important centers of provincial administration, Suvarnagiri mentioned in the minor Rock Edict-1 where from the Aryaputra addressed the Dharmamahāmātrās. The rich harvest of archaeological evidences in the form of northern black polished ware, punch marked coins stele bearing major and separate edicts within the fortified township and its periphery of Sannati clearly indicate that this centre was Sannati. In the light of these evidences it would be easy to project the adequate exploitation of the rich mineral wealth of the region was of vital significance to the Mauryan suzerainty to enable it to maintain its economy as well as the magazine of weaponry. One of the direct and far reaching effects of Mauryan rule in this region is the all-round development of network of communication which connected the area with the rest of the country, north, south and west. Once the Kalingas were subdued in succession of Sannati, nothing prevented Aśoka to extend the route to the Krishna-Godavari belt and the Orissa-Kalinga coastal tract. Communication was easier with Maharashtra through the Raichur doab and a link could also be maintained with the Gangetic valley through Vidarbha.

The significance of this development in peninsular India forming part of Dakshināpatha gradually evolving into a stable cultural establishment had been noticed and accordingly documented by Kauṭilya (in Arthaśāstra). In the same context, Asika, Aśmaka and Mālaka located south of Vindhayas grew to be three important countries to get recognition as janapadas. Sannati, forming part of Aśmaka region, has also yielded the characteristic punch marked coins and northern black polished ware sherds in the stratified deposits clearly indicating the cultural and trade links with the northern janapadas. Significantly, the Aśmaka region supplied the much captivated diamonds to the northern states.8

This formative phase of early historic period in the Deccan appears to have synchronised with the expanding Mauryan Empire as a new source of trade contact gaining requisite momentum during the rule of Emperor Aśoka. Because of their strategic locations as transit points of trade it was essential to fortify them and as such many sites like Isilā (Brahmagiri), Vaijayanti (Banavasi) and Sannati in Karnataka also have fortifications of early historic period, some having Mauryan origin. It is interesting to note that some
of these fortifications are oval in shape with their longer axis parallel to the water body, usually the river close by, providing natural security at least from two sides as also facilitating transportation of merchandise.

The rich merchandize of conch shells, diamonds, precious stones, pearls and gold available in plenty in the south as reflected in Kautilya’s Arthasastra and other goods like muslin, forest produce, grains and oil seeds, finished products of iron along with well developed lapidary industry and meticulous craftsmanship in wood and ivory naturally necessitated the Mauryan expansion on one hand and the development of trade route on the other. It is also quite evident from the observations made in the Arthasastra regarding the security arrangements for the Sārthavahas (trading community) which proceeded south of Vindhyas and the status of the roads en route to different corners of the country. Kautilya also advises to tread that route leading to the south “which traverses a large number of mines, which is frequented by the people and which is less expensive or troublesome or that route by taking which plenty of merchandise of various kinds can be obtained is better.” 9 Thus the Mauryan India of 4th-3rd century BC had a total familiarity with the products originating in south and coming along the southern trade route. The trade contacts also coincided and firmly established the penetration and propagation of the Buddhist faith and the growth of related architecture.

In the Aśmaka, Asika, Māhishaka and Mūlaka regions the socio-religious acceptance and the popularity of the stūpa and its architecture could be easily understood as the native megalithic people were familiar with both the concepts and traditions of ancestor - veneration in the form of a variety of sepulchral structures. Prof. Mirashi had identified Māhishaka with south Hyderabad and Rishika with Khandesh. Prof. D.C. Sircar, however, disagrees with the view.10 As a matter of fact, in this region there were located a group of five janapadas. The Rishikas were in Khandesh, Akola and Amaravati included Vidarbha; in the Aurangabad district the spur of the Sahyādri extending from Ajanta to the Godāvari was the Mūlaka and to the south of the Godāvari, the region of Ahmednagar represented Aśmaka and to its southeast was situated Māhishaka. In the Kishkinda kānda of Ramayana Sugriva describes the region as Vidarbha, Rishika and Māhishaka together.11

Scholars like K.V. Ramesh12 and I.K. Sarma,13 have pointed out that Sannati was an important fortified township and southern regional headquarters of the Mauryan empire. The discovery of major rock edicts on the one hand and the finding of Mauryan level in the excavation of the stūpa at Kanaganahalli, Raṇamandaḷa and the earthen rampart at Sannati strengthen this argument.
After the discovery of the monsoon in the 1st-2nd century AD, trade contacts reached unprecedented heights. The status of fortified Sannati and its suburbs as a regional headquarters during the Mauryans continued to be so under the Sātavāhanas. This gets buttressed by the sculptural depictions at the mahāstūpa-Kanaganahalli of Chhimukha Sātavāhana befriending the Nāgas (Ins.No.A96) who were probably the local inhabitants of the Aṣmaka territory. In addition, one of the depictions of the times of Chhimuka Sātavāhana reflects a trader, Mūrakasēṭhi from Chēdi country along with his entourage on horse, camel-drawn chariots - also incidentally indicating the system of transportation and the points of destination i.e., from Chēdi to Sannati - both of which are located on an already established and much treaded trade route. Significantly, the sculptured panel also shows the entourage carrying the basic necessities like water and other items during the strenuous journey.

Buddhism with its fully evolved monastic organisation, guilds of artists and artisans, and Śrenhīs and Sārthavāhas, its pattern of social organisation and behaviour, its rites and rituals, images and symbols, etc. seem to have been reflected in the art and inscriptions at Sannati and its immediate neighbourhood during the period, beginning roughly from 3rd century BC to about 3rd century AD. Antiquities laid bare so far from excavations and explorations seem to leave no room for doubt in this regard, the evidence is rather overwhelming.

The ceramics, like scarcely occurring russet coated pottery, typical red polished ware, stamped pottery, imported and local types of rouletted ware indicate the affluence of a well to do society engaged in active trade for its well-developed lapidary industry. This is buttressed by terracotta bullae of Roman coins followed by the discovery of an exclusive warehouse on the banks of river Bhima with a separate wharf as an approach wherein the goods were alighted and stored right inside the fortification. This warehouse, built in typical bricks of Sātavāhana period, has a central narrow passage flanked on either side by small strong rooms with massive walls indicating additional security for the goods stored therein. It is also interesting that some of them were interconnected as well.14 Significantly, in the cuttings laid across the fortifications at Dharaniṣṭota15 the earliest period has yielded an embankment-cum-wharf abutting a navigational channel which had been in existence earlier than the rise of fortifications of Sātavāhana period.16 An extensive horizontal excavation in the area may add more data on its interconnectivity with the rest of the township as well as its functional aspects.

Interestingly punch marked coins, as elsewhere referred, were also found in the fortified township further attesting to the spurt in prosperous trade activity in addition
Sannati And Ancient Trade Routes

...to a large number of die-struck and lead and potin coins of the kings of Sātavāhana dynasty. Of them, the coins of Mahārathī (Chhimuka) Sātavāhana, Śrī Śatakarnī, Pulumāvi and Yajña Śrī are important. This growth of Sannati as a trade centre is further substantiated by the re-conquering of the port town of Bhṛgu-Kachcha (Barygaza, present Broach) by Sundara Śatakarnī from the clutches of Kshatrapas who used to divert the ships of the Greek traders affecting the trade in the Sātavāhana dominion. This Sundara Śatakarnī is depicted in one of the sculptured panels at the mahāchaitya. "Among the market-towns of Dachinabades (Dakṣināpatha) there are two of special importance; Paethana distant about 20 days journey south from Barygaza; beyond which about 10 days journey east there is another very great city, Tagara. These are brought down to Barygaza from those places by wagons and through great tracts without roads, from Paethana Camelian in great quantity, and from Tagara much common clothes, all kinds of muslins and mallow cloth, and merchandise brought there locally from the regions along the sea coast".17 Explorations in the Sannati area indicate the existence of a flourishing lapidary industry.

The epigraphs engraved on various architectural members of the mahāstūpa mentioning the contributions of a number of traders and householders hailing from distant places include Dhānyakaṭaka, Kotūr, Ujjainī, etc. An analysis of these place-names clearly indicates, that Sannati had become a flourishing nodal centre at the crossroads of the trade routes by 2nd century AD. The main Dakṣināpatha from Ujjain led to Sannati traversing through ancient Tagara (Ter), Pratishṭhāna (Paithan), Dvāraghāṭika (Naneghat), Pitāngalya (Pitalkhōra), Bhogavardhana (Bokardan) probably through Māhishmati (Maheshwar-Navatoli). Sannati appears to have grown into a powerful political centre controlling the movement of commodities from south to further north.

Nanaghat pass affords the shortest route between Devagiri and Aurangabad to Kalyan-Bhiwandi and Thana.18 From Aurangabad, where Pratishṭana and Pitalkhōra were flourishing, the route went to Bhōgavardhana to Ghatotkacha, Māhishmati, Ujjain and other important central Indian sites. Towards east, the route from Sannati touched Ghantasala through Dhānyakaṭaka (Amarāvati), Sātanikōṭa, Kotūr (Kottur). A western sub-route connected Sannati with west coast through Brahmagiri, Vadagaon Madhavpur and Banavasi. Recent excavations at Rajaghaṭṭa (Taluk Doddaallapur, District Bangalore) has yielded religious brick structural activity in the form of an apsidal plan with well evolved moulded plinth and over 100 miniature terracotta votive stūpas containing the clay tablets bearing the well known Buddhist creed. Palaeographically, the clay tablets and the associated structural activity are...
ascribed to 4th-5th centuries AD. These evidences point towards the possibilities of hypothesizing another southward trade route connecting Sannati to Tamil Nadu area via Brahmagiri, Chandravalli, Rajaghatṭa, Kolar (Banahalli), Dharmapuri and Kānchipuram in the early centuries of the Christian era.

Further inland, southwards, Sannati was connected with Vaijjayanti (Vanavāsa, Banavāsi) passing through Mahisēka (Maski), Kuṭapa (Koppal), Isilā (Brahmagiri) and Chandravalli. Further, west-southwest another route connected Sannati with Banavasi along the hinterland of west coast through Mahāgāma (Vadagaon-Mādhavpur?). This Mahāgāma was interconnected at north through Brahmapuri (Kolhapur), Sopara and thence further towards Nasik.

Stylistically, the sculptural art at Kanaganahalli, Sannati, reflects a pronounced influence of the developments at Bhārhut, Ajanta and Sānchi in the first phase of Period-II indicating the socio-religious and cultural contacts that Sannati had with the respective places, obviously as an off-shoot of a well-established trade line.

Isilā and Suvamṇagiri are the only two place names that are known so far from the Aśokan edicts in the Karnataka-Andhra region. Scholars opine that Suvamṇagiri was the sub-capital of the southern province of the Mauryan Empire and Isilā was probably a district headquarter under the jurisdiction of Suvamṇagiri. Suvamṇagiri (Suvarnagiri), according to some scholars, is the environs of Maski in Koppal district where the edict is discovered. Efforts have also been made by scholars to identify Suvarnagiri with Kanagagiri, district Koppal (erstwhile taluk of Raichur); Sonagir in Bihar, Songiri in Maharashtra, somewhere near Rajgir; some stretch in Western Ghats; Erragudi in Andhra Pradesh and even in Sri Lanka. However, the discovery of the separate and major Rock Edicts, Northern Black Polished ware and Punch-marked coin in the Raṇamandala area, the Mauryan phase of fort and stūpa in the excavations may be considered as valuable data to identify Suvarnagiri with Sannati. The influence of the artists coming from the northern Deccan (Vakataka Vishaya) in the third phase of sculptural activity of Period-II also reflects the popularity of the place as an important socio-cultural and trade centre. The importance of Sannati as a nodal centre in active trade appears to have gradually waned due to the rise of the Ikshvākus of Vijayapuri (Nagarjunakonda) also coincidingwith the diminishing powers of the imperial Sātavāhanas by mid 3rd century AD. The subsequent socio-religious conditions may have contributed to the gradual decline of this once flourishing Buddhist centre and with no endowments from the benefactors even to maintain the the stūpa leading to its collapse, also might have contributed to the decline of trade activity as a terminus ante quem.
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SANNATI AND ANCIENT TRADE ROUTES

2. *Indian Archaeology - 1978-79 - A Review*, p. 90, Pl. LA.
4. S. Nagaraju, *Cave Architecture of Western India*, Delhi, 1981.
11. *Ramayana, Kishkinda Kanda* - "Vardarbhānrischāiva Ramayā māhishakānāpi (41.10)".
Ever since the discovery of Sannati in the year 1954, various scholars have studied and interpreted the cultural potentiality of the site as one of the largest flourishing Buddhist centres of Karnataka and dated it between c. 2-3rd centuries AD. Débala Mitra¹, however opined that ‘the (Buddhist) establishment (at Sannati) was in a highly affluent state from the 1st century BC to at least the 3rd century AD’ referring to the rich sculptural art of the region. Recent explorations and excavations including the chance discovery of the stele bearing parts of the major and separate Rock Edicts of Asoka, the Mauryan emperor, has provided considerable amount of authentic archaeological data for arriving at a firm and fairly comprehensive chronology of the site.

The topography and the landscape in and around Sannati reveal granite boulders of small to medium size stacked along the periphery of the agricultural fields. The possibility of these boulders originally forming part of the megalithic architecture and their destruction due to intensive agricultural operations on the one hand and continuous quarrying for extracting quality construction materials on the other cannot be ruled out. It is pertinent to note in this regard that the Asokan inscriptions² in Andhra-Karnataka area are found concentrated in the Megalithic zone and at least in two localities viz., Koppal (Dist. Koppal) and Erragudi (Dist. Kurnool) were addressed to the builders of megaliths, as inferred by scholars,³ who by that time appear to have perfected the expertise of iron technology and developed well established industries for producing requisite weaponry and implements for warfare and agriculture respectively in the region. In addition to the above, the rich mineral deposits in the region, including the Deccan, might have attracted the attention of the Mauryan emperor, to include the area within his domain (antah or iharāja vishaya). The occurrence of the stele-bearing the major Rock Edicts and separate Rock Edicts at Sannati and the sculptural renderings of the Emperor Asoka on the upper drum veneering of the Kanaganahalli stūpa duly acknowledging his ardent efforts towards the cause of spread of Buddhism assume special significance in this context.
The initial explorations in the Ranamanḍala at Sannati, by the Hyderabad Circle of the Survey, brought to light some significant archaeological data for inferring a Mauryan phase here in the form of structural activities in brick medium (bricks of size 54x27x09 cm and 47x24x08 cm) and a granite stone bearing typical Mauryan polish.

Further, the excavations in the same site by the Department of Archaeology and Museums, Mysore, in the years 1993-95, reported fragmentary ivory pieces of a chhatra finial and a circular vedi bandha of a stūpa forming part of votive offerings, a few terracotta figurines exhibiting Mauryan features and more conclusively, an evidence in the form of sherds of northern black polished ware and a circular medallion (disc stone) bearing the relief of standing goddesses flanked by palm trees and various animals were reported.5

The trial excavations conducted by the Bangalore Circle of the Survey in the year 1994-95, close by, in the same locality of Ranamanḍala, though in a limited area, has revealed a thorough stratigraphy of the site as follows.

<table>
<thead>
<tr>
<th>PERIOD-IV Sātavāhana</th>
<th>On an average, the cultural deposit in this strata measures 2.70 m in thickness.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Red ware, polished Red ware, Stamped pottery, Black slipped ware, Russet coated white painted ware, Rouletted ware, beads on TC, semi-precious stone, shell objects, polished pounders, millers, etc. and coins. Coins of copper, lead and potin of Sātakarnī and Śri Sātakarnī have been retrieved.</td>
</tr>
<tr>
<td></td>
<td>Profuse brick structural activity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERIOD-IIIB Maurya-Sātavāhana</th>
<th>On an average, the cultural deposit in this strata measures 65 cm in thickness.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Red ware, polished Red ware, Black slipped ware, beads on TC, semi-precious stone, shell objects, polished pounders, millers, etc. and coin of Maharathi Śri Sātavāhana.</td>
</tr>
<tr>
<td></td>
<td>Structural activity begins.</td>
</tr>
</tbody>
</table>

<table>
<thead>
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<th>PERIOD-III Maurya</th>
<th>On an average, the cultural deposit in this strata measures 85 cm in thickness.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Red ware, Black polished ware, Black and Red ware.</td>
</tr>
<tr>
<td></td>
<td>Scrubbers, polished stone pestles, dumbbell-shaped pounders, stone block and other minor antiquities in the form of shell bangles, beads on TC and semi-precious stones, bone-arrow heads and coins.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERIOD-II Maurya</th>
<th>On an average, the cultural deposit in this strata measures 20 cm in thickness.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Red ware, Black ware, less percentage of black and red ware.</td>
</tr>
<tr>
<td></td>
<td>Red ware, slags, nails, fish-hook of iron.</td>
</tr>
</tbody>
</table>

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Significantly, here also Period-IIIA (Mauryan) succeeds the megalithic period and precedes the affluent Satavahana period affirming the chronological horizon arrived at Adamā and other places. The trenches laid across the outer fortification wall at Ranamandala have also revealed that in the first phase the fort was constructed by cutting a moat and heaping the earth to the requisite height as a wall, an activity ascribable to the Mauryan period. With the above data, the structural activities revealed in the excavation at the stūpa site at Kanaganahalli can be dated to the following periods.

### Period-I: Maurya

In the light of the above findings, it would be in the fitness of things to ascribe the earliest phase of the structural activity of the stūpa to the Mauryan period. It is worth while to recapitulate here that the earliest phase of structural activity of the site, evidenced in the form of a simple earthen tumuli raised by piling up alternate layers of medium to small size boulders, pebbles and limestone blocks and black cotton soil around a pit of loose ashy soil, is indicative of sepulchral/funerary affinity. This was enclosed by limestone masonry wall set in mud mortar. This architectural composition was raised over a prepared ground of well-rammed black cotton soil mixed with naturally available limestone blocks and rubble of varying sizes. The basal diameter of the earthen mound was 16 m that rose to a height of about 7.5 m and probably surmounted by a simple umbrella set in a railing of perishable material as in case of the earliest structures of the kind in the Indian-Buddhist context. The wall surrounding the tumuli is extant up to a height of 1 m in seven courses with a uniform width of 1.96 m. This wall must have also served as a low drum or base for the object of worship besides holding the form and contents of the tumuli in position. This structural composition hardly displayed any improvement over its primitive prototype of the pre-Buddhist period.
This period of activity is further buttressed by the finding of a mutilated polished sandstone sculpture of a lion capital in round at the stūpa site at west. In spite of its mutilation this sculpture exhibits certain traits similar to the Mauryan lion capital on the lines of the Bhārhut depiction.

This lion, positioned probably over a massive pillar and oriented towards the fortified habitation of Sannati, served as a beckoning landmark of this stūpa site during its early days of construction and development. Sculpted in somewhat coarse-grained sandstone, a material alien to this region, this couchant lion is extant up to the shoulders with the head and body completely mutilated. It has as many as four rows of tufts in its mane. Each of the strands is twisted and sculpted like a lotus petal. While at Bhārhut, the neck appears to be taller, it is short and stout at Kanaganahalli. However, the similarities cannot be ignored. The specimen at Sānchi of Sunga period reflects plasticity in the curvature of the shoulder and chest whereas the lions of Bhārhut and Kanaganahalli depict a median ridge of the mane running onto the shoulder and further back - a feature absent in the specimen at Sānchi and Amarāvati. In addition to this, in spite of mutilation and wear-and-tear, the sculpture of Kanganahalli has the evidence of a typical shine and lustre derived by polishing. This emphasizes the presence of a lion capital towards the western entrance of stūpa as is observed elsewhere. Interestingly, one of the upper drum veneerings that encased the stūpa in Phase I of Period II depicts such a figure of lion capital (Pl.CXVI-B and Fig.47a).

The evidence of the pre-Sātavāhana levels at the stūpa also get supported by the occurrence of a solitary sherd of northern black polished ware and silver punch marked coin (Coin No.081) at the site. In the light of the fact that many outcrops of granite boulders are still extant in the vicinity, it may not be an improper or far fetched presumption to associate the stele bearing the Āsōkan edicts as forming part of this original stūpa complex of the Mauryan period. The exact location of its installation and remaining parts of the stele would serve as clinching evidence regarding the dating of the Mauryan phase of structural activity at the site.

Period-II: The Sātavāhana

The subsequent activities of the expansion and embellishment of this nuclear stūpa of Period I is well documented in the form of dated inscriptions mentioning the names of successive rulers from Chhimuka Sātavāhana to Mādhariputra Pulumāvi, found on various architectural components of the stūpa from the upper drum slabs to outer railing and the structural activity beyond. It is also buttressed by a considerable quantity of coins of various rulers found at the site, the gradual development and metamorphosis of
sculptural art in the *hīnayāna* theology culminating in the introduction of Buddha sculptures in the *mahāyāna* (Phase IV of Period II) phase.

Based on the available data, the structural activities of Period II at the stūpa are further classified into five phases as under.

**Period - II: Phase I**

The preceding core of Period-I (Maurya) was encased with uniformly dressed limestone blocks, with evidences of lime plaster, reflecting a gentle curvature at its lower drum. These were added following the contour of the tumuli probably after increasing the height of the limestone masonry wall set in mud mortar. The lower drum slab was less pronounced with smaller width and was also veneered with ornate interlocking slabs. Majority of the lower drum slabs were plain except for the border pilaster decoration and only a few were treated with popular *hīnayāna* themes like gift of Jētavana by Anāthapiṇḍika, *Dharmachakra*, monasteries, Rāmagrāma stūpa with nāga worshippers at the pilasters and the depictions of king, who could be contextually identified as Aśoka. The lower drum slabs were held by the ornate flower receptacles (cornice) and the stūpa had a circumambulatory passage of a smaller width paved with limestone slabs of irregular shape and size enclosed with a railing which was not probably very different from the present extant one.

Some of the lower drum slabs also bear donatory inscriptions assignable to this phase, which palaeographically belong to c.1st century BC. From the available epigraphs of slightly evolved type at the stūpa, it is apparent that simultaneously the upper drum was also being veneered as reflected by the donatory inscription of the 16th year of Chhimukha Sātavāhana (=C.36 BC.) during which period these sculpted encasements were donated by a householder Tōkhisa (Ins No.A.108). The type of composition and subject matter for the veneerings of the upper drum slab had been alluded to in one of the lower drum slabs depicting the worship of the Lord in the form of *Dharmachakra* and *vajrāsana* (PL.LIV-B). Historically and traditionally it is a known fact that Chhimukha Sātavāhana, a vassal of the Sungas, did slay Susarman-the last ruler of the Sunga dynasty. It is also known that he was the progenitor of the Sātavāhana dynasty. Even though their capital was Pratishṭhanapura (modern Paithan), they had been expanding their territory slowly towards east and south into the Asmaka region of which Sannati was also a part. The nāgas might have been ruling here whom Chhimuka befriended and with whom developed Sannati as a flourishing regional capital. Incidentally, Chhimukha is also depicted along with his friend Nāgarāya and duly labelled as *Chhimuka Sādavāhanō nāgarāya sakhāvāpi*. Unless, the nāgas hailed from nearby region and
gained popularity, there is no necessity of recording this incident, which must have happened at that time as an event of importance worthy of documenting.

The excavation has also yielded coins both from Rānāmaṇḍala and Kanaganahalli bearing legend Mahārathisa Siri Sātavāhanasa and Siri Sātavāhanasa. They imply that these coins were issued while he was still in a feudatory status. The lower drum slabs were held in position by ornate sculptured cornices known as pushpagrāhīs in the inscription. In spite of wear and tear and damage caused to them many of these bear inscriptions assignable to 1st century BC. A narrow pradakshināpatha and perhaps an austere railing with shallow lotus medallions at the tabha were provided. The subsequent additions and alterations to this railing have completely altered the distinct features of this railing.

**Period - II: Phase II**

In the second phase, the structural activity reflects further increased girth of lower drum by providing fairly large limestone blocks with roughly dressed exterior surface and introduction of some more drum slabs to compensate the increased girth. Simultaneously, the dome was also further embellished by introducing the slabs bearing portraits of kings Sātakarni, Mātalaka, Sundara Sātakarni and Vāsiṣṭhiputra Puḷumāvi (Puḷumavi II) along with some new ones and reusing earlier veneered slabs. These introductions have inadvertently led to certain anachronisms in the narration of the life of the Master and also in the articulation pattern. Collars of animal friezes were also provided to act as a counter weight functionally and to act as a madhya-bandha decoration distinguishing the upper drum and the dome to enhance the elevational grandeur. The presence of āyaka platforms at the cardinal directions in some insipient form cannot be ruled out, since during the third phase, the presence of well developed āyaka platforms with increased size have been noticed which overlay the fragments of earlier veneering stones and Buddhapāda at north, veneering slabs at west and south respectively. The floor slab inscription of the time of 35th year of Vāsiṣṭhiputra Siri Puḷumāvi (=126 AD.), mentioning the introduction of the thara of the agatukapata (band of animal friezes) provides a precise date to the 2nd phase of Period II.

**Period - II: Phase III**

During this phase, the girth of the lower drum was further enhanced by providing a brick drum all around, extending the āyaka platforms at cardinal directions and re-veneering of the lower drum by reusing and adding fresh sculpted slabs to cover up the increased circumference. This increased girth also led to the expansion of the pradakshināpatha at a higher level and realigning the railing by providing fresh railings as evidenced by the re-use
of some of the fragmented uprights of the earlier phase as props for the newly laid railing. The epigraphs found on the uprights also substantiate the above activity. At the same time, the eastern āyaka was provided with āyaka pillars. Further, the apsidal chaitya at southeast, circular chaityas at southwest and northwest and the monastic complex (bōdhikā vihāra) at north were also constructed in brick medium. The major additions in this phase were that of narrative cornice slabs encasing the Buddhapādas placed over the āyaka platform and further expansion of the railing to its present form. The dated inscriptions of the period of King Vāsiśṭhiputra Sātakarnī (=132 to 138 AD.) provide the exact dates during which these extensions and additions to the stūpa were made.

The reign of the king Vāsiśṭhiputra Sātakarnī augmented the architectural and the artistic ramifications by way of introducing new elements in the Buddhist realm of art in the lower Krishna valley also. The sculptural art of this period provides us with a wealth of all aspects of life of the period as reflected in the sculptured narrative friezes (cornice) positioned along the periphery of the āyaka platforms. These sculptured cornices paved the way and served as models for the creation of similar masterpieces of the Ikshvāku period at Nagarjunakonda. There appears to have been great and brisk constructional activities during the reign of Vāsiśṭhiputra Sātakarnī at Sannati. The structural activities in brick medium in the peripheral zones viz, the stūpa at Anegutti, the warehouse containing a number of rooms near the river-bed in the Raṇamaṇḍala area, the vihāra complex in the Benagutti area and the brick-built structure at Hasargundgi on the right bank of the River Bhima could be ascribed to this period. The size of the brick, constructional methodology adopted and the general style of the religious and secular structures show some striking similarities. Even the fort appears to have been strengthened during this period.

**Period - II: Phase-IV**

The stūpa witnessed the emergence of mahāyana phase of sculptural activity in this period, which is well-evidenced in positioning of massive standing sculptures of Buddha over the āyaka platforms at south and west on separate independent pedestals without altering the structural configuration in any manner. One sculpture of Buddha was placed right over the eastern āyaka platform by making requisite alteration. The four āyaka pillars originally accommodated in alignment were repositioned. Two of them were placed at the extreme northern and southern corners abutting the āyaka platform. The other two were placed behind the seated statue of Buddha that was freshly introduced. Sculptures of Mānushi Buddhas were also placed, two
each at sub-cardinal directions in the pradakśiṇīpātha, using the plain lower drum slabs as backdrop. This novel concept of adding the Manushi Buddhas in its fully developed form marked the supremacy of mahāyāna schism over the puritanical hinayanism prevalent till then in the site. The gradual transformation of hinayāna tradition to mahāyāna and emergence of the eight Mānushi Buddhas in the fully evolved pattern possibly along with the precise direction of installation emerged at the maha stūpa during this phase. It also implies the far and wide contacts that the people of Sannati/Kanaganahalli had established with the other well-known Buddhist centres like Mathura, Sānchi, Vakaṭaka region and Amarāvati.

Period-II; Phase-V

During this phase minor alterations were effected in the form of installation of umbrella stones and construction of 16-pillared promenade in the southwest of the stūpa. In addition, during the period of Mādhāriputra Puḷumāvi (Puḷumāvi IV) (=236AD), the eastern āyaka with āyaka pillars was provided with fresh encasing.

Thus the original nucleus stūpa of the Mauryan times in the form of a simple earthen tumuli of Period-I was renovated, altered and embellished time and again in Period-II with all its accessory structures surrounding and the monastery at north by mid 3rd century AD. It appears that even before the Ikshvakus established their political ascendancy in the Nāgarjunakonda region and set their sights on embellishing their capital city Vijayapuri, the maha stūpa (Adhōlōka Mahachetiya) the crowning glory of kanaganahalli (sannati), receded to the oblivion. With very little support for its maintenance from the benefactors and due to the prevalent socio-religious conditions which followed the Sātavāhana rule in the region and vagaries of nature may have accelerated its eventual collapse and damage. The next cultural horizon and structural activities in the Bhima valley worthy of mentioning dawned only in the period of Rāshtrakūṭas of Malkhed after defeating the Chālukyas of Bādami on the banks of river Bhima as attested by a lone hero-stone inscription kept in front of Chandralāmbā temple and profuse architectural ramifications at Sirwal, Kollur and other places.
CHRONOLOGY

3. A. Sundara, *Early Chamber Tombs of South India*, New Delhi, 1975;
   C.V. Haimendorf, 'The problem of Megalithic Culture in Middle India', *Man in India*, Vol. XXV, No. 2, Ranchi, 1945;
### TABLE SHOWING THE LIST OF EXPLORED VILLAGES IN THE BHIMA VALLEY AROUND SANNATI, DISTRICT GULBARGA

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the village</th>
<th>Latitude N</th>
<th>Cultural remains</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hasargundgi</td>
<td>16°48'42&quot;</td>
<td>Middle Palaeolithic tools, Mesolithic tools, stūpa mound, Chāyāpratimā</td>
</tr>
<tr>
<td></td>
<td>Shahapur</td>
<td>76°54'43&quot;</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sirwal</td>
<td>16°48'38&quot;</td>
<td>Middle Palaeolithic tools, Mesolithic stray, Neolithic axe, inscriptions, Stūpa mound, Chāyāpratimā (1st-2nd Century AD), temples (8th to 12th century AD), stepped well (8th-9th century AD)</td>
</tr>
<tr>
<td></td>
<td>Shahpur</td>
<td>76°53'38&quot;</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Anbi</td>
<td>16°51'13&quot;</td>
<td>Inscribed chāyāpratimā (1st-2nd century AD), group of temples (8th-9th century AD)</td>
</tr>
<tr>
<td></td>
<td>Shahpur</td>
<td>76°54'01&quot;</td>
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<td>4</td>
<td>Roza</td>
<td>16°51'24&quot;</td>
<td>Dargah (modern period)</td>
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<td>Shahpur</td>
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<td>5</td>
<td>Hosur</td>
<td>16°52'23&quot;</td>
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<tr>
<td></td>
<td>Shahpur</td>
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<tr>
<td>6</td>
<td>Rampur</td>
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<td>7</td>
<td>Hotinmadu</td>
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<td>Middle Palaeolithic tools</td>
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<td>Jewargi</td>
<td>76°57'04&quot;</td>
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<td>8</td>
<td>Honnal</td>
<td>16°54'52&quot;</td>
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<td></td>
<td>Jewargi</td>
<td>76°56'24&quot;</td>
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<td>9</td>
<td>Chikmalla</td>
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<td></td>
</tr>
<tr>
<td>No.</td>
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<td>Longitude</td>
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<td>Hiremalla</td>
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<td>Rampurhalli</td>
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<td>Malag</td>
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<td>Chitapur</td>
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<td>24</td>
<td>Kannur</td>
<td>17°02'32&quot;</td>
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<tr>
<td></td>
<td>Chitapur</td>
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</tbody>
</table>
EXCAVATION AT RAṆAMĀṆDALA, SANNATI

STRATIGRAPHY

The trial trench of about 25 sq m area (4.25 x 4.25 m) laid in the apex of the approximately 6.50 m high mound revealed a stratigraphy of 11 layers. The first six layers to the southeast corner of the trench are highly disturbed by intense pit activity. The stratigraphy from top to bottom up to the natural soil (marked as layer-11) is as follows:

Layer 1: Nearly 0-20 cm in deposit, this disturbed loose blackish soil forms the humus and is mixed with limestone rubbles, stone chips, yielding black ware, red polished ware, red ware and black and red ware. Russet-coated painted ware and rouletted ware also occur in small quantities.

Layer 2: Nearly 35-40 cm in thickness, this stratum shows active cultural occupation composed of blackish, loose earth mixed with lime and stone rubbles, brickbats and potsherds. Contemporary to this stratum are two brick walls of which structure-I runs into south and west sections at the southwest corner of the trench and structure-II runs in east-west orientation and faces south. Structure-I has 5 courses of bricks set in mud mortar, is available to a height of 45 cm. Each brick measures 46x21x9 cm. Structure II has seven courses rising to a height of 62 cm and found disturbed at places. It is perhaps part of structure I, evident from the similar measurement of bricks. The ceramic typology revolves around black ware, red polished ware, red ware and black and red ware. Russet-coated painted ware and rouletted ware in very small percentage.

Layer 3: Slightly loose soil with ashy patches; this strata has in ceramics red ware, rouletted ware, black ware, red polished ware, red ware and black and red ware.

Layer 4: Compact black soil and develops cracks due to thermal action is evident in the layer. The ceramic typology is of all black ware, red polished ware, red ware and black and red ware.

Layer 5: This is represented by a series of floor activity in three successive stages of (1) compact blackish hard soil rammed with pebbles and pottery; brownish sand patches, patches of charcoal and ash are a noteworthy feature, (2) layer of compact rammed dark brownish clay rammed with pot sherds and (3) compact ashy soil. The ceramic typology includes all black ware,
Appendix-II

Red polished ware, red ware and black and red ware. The circular floors with post-holes is made of black cotton soil, pot sherds, stone chips and limestone pieces and the diameter varied from 2.5 to 4 m.

Layer 6: This strata is represented by compact, hard ashy brownish soil, has clear evidences of habitation activity in the form of a circular hearth of burnt bricks which are of wedge-shape and of 15 cm height found in the south-east corner of the trench. The ceramic typology includes red ware, black and red ware.

Layer 7: Compact blackish brown soil formation with limestone chips and the pottery is represented by black and red ware and red ware.

Layer 8: Compact blackish brown soil formation; ceramics in profuse, dominated by black and red ware and red ware. Layer No.7 and 8 appear to be one and the same in ceramics and formation, but, black ware is in higher percentage.

Layer 9: Similar to 10 in its composition and texture, without any cultural assemblages showing a hiatus between layer 8 and 10.

Layer 10: The area excavated was restricted to 2x2 m only. Compact greyish black soil composed of blackish clay and stone chips of chert material, this strata yields microliths in the form of bladelets, points, lunate, borer-cum-burin etc, on inferior material viz., Chalcedony, quartzite and quartz without any other cultural material. The context of its occurrence needs further probe for a clear analysis in the light of palaeolithic tools, both lower and middle being found on the surface.

Layer 11: Natural soil, highly weathered granitic gruss without any cultural vestiges.

by black and red ware and red ware. Layer No.7 and 8 appear to be one and the same in ceramics and formation, but, black ware is in higher percentage.
A REPORT ON THE SCIENTIFIC STUDIES OF SAMPLES COLLECTED FROM THE EXCAVATED STūPA REMAINS AT KANAGANAHALLI, TQ CHITAPUR, DIST: GULBARGA, KARNATAKA.

General View of Excavated Stūpa Remains

SCIENCE BRANCH
ARCHAEOLOGICAL SURVEY OF INDIA
29, NEW CANTT ROAD, DEHRADUN

CONTENTS

INTRODUCTION

Part A Visual Examination, Photo Documentation and Wet Chemical Analysis.
Part B Salt Analysis.
Part C Petrological Studies.
Part D Instrumental Analysis.
Part E Aggregate Analysis of Mortar Samples.

Conclusion
Studies conducted under the guidance of K.S. Rana, Director (Science), ASI.

Report Prepared by
Shilpa Raturi Deputy Superintending Archaeological Chemist.

Samples Analyzed by
Mangay Ram, Deputy Superintending Archaeological Chemist.

Thin Sections prepared by Stone Conservation Laboratory APL Agra.

Instrumental Analysis and Petrological Studies conducted by Wadia Institute of Himalayan Geology, Dehradun.
INTRODUCTION

The Great Stūpa at Kanaganahalli, Taluk Chitapur Dist. Gulbarga, Karnataka referred to as adhōiōka Mahā-chaitya (The Great Stūpa of the Netherworlds') in the inscriptions, were brought to light by the excavations taken up by the survey during the year 1996 to 2001. The excavation at the site yielded remnants of a well developed Stūpa constructed with locally available limestone, some small & big structures. Eleven samples of stone five samples of mortar / concrete and four samples of bricks were received for the scientific analysis to enable their chemical characterization.

In order to ascertain the exact and detailed nature and composition of these samples were subjected to scientific analysis on following parameters by application of both traditional and modern methods.

1. Visual Examination, photo documentation and wet chemical analysis.
2. Salt Analysis.
4. Mineralogical Studies by Instrumental Analysis.
5. Aggregate Analysis of Mortar Samples.

PART-A

Visual Examination and Photo Documentation.

Initially, the samples were visually examined and the observations were recorded, the photo documentation was carried out employing Camera. The documented photographs are appended in the annexure I and II along with details of observations recorded in the wet analysis report.

Wet Chemical Analysis

The stone samples 11Nos., mortar samples as well as the brick samples were analyzed using traditional wet chemical methods. This also included recording physical observations like the shape, size, texture, accretions and colours of the samples and their constituents. Following the standard methods of analysis the constituents of the samples were determined using gravimetric and volumetric methods by applications of various reagents and chemicals. Constituents so determined are Loss of Moisture, Loss on Ignition, Silica, Ferric Oxide, Aluminium Oxide, Calcium Oxide and Magnesium Oxide.

The representative samples for chemical analysis were prepared by picking small quantities of the individual sample from difference parts of the specific sample. These were than grounded to fine powder form in pestle mortar and the sample was then obtained by quartering as per BIS prescribed standard procedures. The samples being stone, bricks and mortar, the wet chemical analysis was conducted by adopting the standard silicate analysis for high silica content sample. The detail of chemical analysis is given the tables enclosed along with the photographs.
EXCAVATED STūPA REMAINS AT KANAGANAHALLI, TQ CHITAPUR, DIST: GULBARGA, KARNATAKA

Sample materials collected from the Mahā Stūpa and excavated remains kanaganahalli (sannati), taluk chitapur, dist. Gulbarga, karnataka for requisite detailed chemical analysis.

Sample Collected on 02/01/2009.

LIME STONE

I. From the insituswest facing veneering slab of southern āyaka (bearing inscription kagisa Sabhyasa etc.).

II. From Tabha (Pillar) No. 62.

III. From insitus veneering slab of drum and western āyaka (next to the slab bearing nine hooded nāga sculpute).

IV. Flakes from the damaged tabha No. 72. Between and western āyaka.

V. Flake of the ruptured plain slab of the drum.

VI. Flake of Crushed plain slab of the drum.

VII. Flakes of the crushed plain slab of the drum near eastern āyaka.

VIII. Weathered lime stone with patination from the interior of the dome.

IX. Weathered lime stone piece taken from the interior part of the dome slab.

X. From the crushed floor slab in the south-eastern quadrant.

XI. Part of a floor slab deteriorated due to inherent ferrous impurities.
Analytical Results of Stone Samples from Excavated Site, Kanaganahalli (Sannatl),
Taluk Chitapur, Distt. Gulbarga (Karnataka)

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Physical Observation</th>
<th>Loss of Ignition %</th>
<th>Calcium Oxide</th>
<th>Magnesium Oxide</th>
<th>Iron Oxide</th>
<th>Alumina</th>
<th>Felspar</th>
<th>Feldspar</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The stone samples grey in color.</td>
<td>0.06</td>
<td>37.85</td>
<td>7.43</td>
<td>Tr</td>
<td>1.0</td>
<td>3.86</td>
<td>48.02</td>
<td>97.54</td>
</tr>
<tr>
<td>2</td>
<td>The stone samples grey in color.</td>
<td>0.06</td>
<td>39.38</td>
<td>9.1</td>
<td>Tr</td>
<td>1.0</td>
<td>49.64</td>
<td>47.04</td>
<td>99.73</td>
</tr>
<tr>
<td>3</td>
<td>The stone samples grey in color.</td>
<td>0.06</td>
<td>37.12</td>
<td>9.14</td>
<td>Tr</td>
<td>1.0</td>
<td>47.00</td>
<td>0.30</td>
<td>98.55</td>
</tr>
<tr>
<td>4</td>
<td>Rounded shaped stone samples grey in color having plotted spots on its upper surface.</td>
<td>0.12</td>
<td>34.85</td>
<td>13.08</td>
<td>Tr</td>
<td>1.0</td>
<td>44.24</td>
<td>0.80</td>
<td>98.58</td>
</tr>
<tr>
<td>5</td>
<td>Weathered stone chips of varying thickness.</td>
<td>0.26</td>
<td>37.66</td>
<td>11.16</td>
<td>Tr</td>
<td>1.0</td>
<td>47.32</td>
<td>0.30</td>
<td>97.71</td>
</tr>
<tr>
<td>6</td>
<td>Weighed stone chips grey in color having plotted spots on its upper surface.</td>
<td>0.07</td>
<td>36.65</td>
<td>11.44</td>
<td>Tr</td>
<td>1.0</td>
<td>46.62</td>
<td>0.30</td>
<td>97.49</td>
</tr>
<tr>
<td>7</td>
<td>Multilayered grey color sample having brownish spots on its upper surface.</td>
<td>0.13</td>
<td>37.29</td>
<td>9.40</td>
<td>Tr</td>
<td>1.0</td>
<td>47.32</td>
<td>0.30</td>
<td>99.14</td>
</tr>
<tr>
<td>8</td>
<td>The stone samples grey in color.</td>
<td>0.08</td>
<td>39.95</td>
<td>10.07</td>
<td>Tr</td>
<td>1.0</td>
<td>48.46</td>
<td>0.30</td>
<td>97.90</td>
</tr>
<tr>
<td>9</td>
<td>Fine multilayered buff color stone samples having brownish spots on its other surface.</td>
<td>0.09</td>
<td>36.98</td>
<td>11.31</td>
<td>Tr</td>
<td>1.0</td>
<td>45.51</td>
<td>0.30</td>
<td>97.94</td>
</tr>
<tr>
<td>10</td>
<td>Grey color sample having plotted spots on its other surface.</td>
<td>0.13</td>
<td>35.76</td>
<td>8.24</td>
<td>Tr</td>
<td>1.0</td>
<td>37.88</td>
<td>0.40</td>
<td>97.92</td>
</tr>
<tr>
<td>11</td>
<td>Grey color sample having plotted spots on its surface.</td>
<td>0.15</td>
<td>37.88</td>
<td>8.24</td>
<td>Tr</td>
<td>1.0</td>
<td>37.88</td>
<td>0.40</td>
<td>97.92</td>
</tr>
</tbody>
</table>

NOTE: (1). The locations of the above samples are enclosed in annexure I.
LIME MORTAR
I. From southern āyaka-cushion provided to the veneering slab facing west (next to the slab containing stūpa model).
II. From veneering of drum slab nearer to western āyaka (slab No. 22).
III. From cushion provided to veneering slab (L.D.S. 31) nearer to northern āyaka.
IV. Lime concrete chunk from the curvature of the inner dome near north-eastern corner.
V. Lime concrete chunk from the interior of the dome.
### Analytical Results of Mortar Samples from Excavated Site, Kanaganahalli (Sannati), Taluk Chitapur, Dist. Gulbarga (Karnataka)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample No.</th>
<th>Physical Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>Lumps mortar sample with buff color. Accretions are visible on its outer surface. Pebbles of varying sizes are visible within the mortar samples.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss of Moisture %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At 450°C</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>Mortar sample having pebbles of varying sizes is of dull white color. Mud layer is visible on one surface, while the other surface seems deteriorated with blackness.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>III</td>
<td>Lumps mortar sample is of whitest color, having pebbles of varying sizes. Blackness is visible on its surfaces.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>IV</td>
<td>Lumps mortar sample having blackness on its outer surface, is of whitest color having pebbles of varying sizes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>V</td>
<td>Lumps mortar sample having blackness on its outer surface is of creamy color, having small pebbles of varying sizes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** (1). The locations of the above samples is enclosed in annexure I.
I. Brick sample with dull red color. Fine mortar layer is visible on its lower surface. The sample seems porous in nature.

II. Brick sample is of dark red color, black spots have been visible on its surfaces including white patches.

III. Brick sample with red color. Fine mortar layer is visible on its upper surface, white & black patches seen on the other surface.

IV. Flat Brick / Tile porous sample is of dark red color. White patches are visible on the surfaces.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Sample No</th>
<th>Physical Observation</th>
<th>Loss of Moisture %</th>
<th>Loss on Ignition %</th>
<th>Acid Insoluble %</th>
<th>Ferric Oxide Fe2O3%</th>
<th>Aluminium Oxide Al2O3%</th>
<th>CaO%</th>
<th>MgO%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>Brick sample with dull red color. Fine mortar layer is visible on its lower surface.</td>
<td>1.26</td>
<td>8.33</td>
<td>72.68</td>
<td>6.29</td>
<td>0.61</td>
<td>9.94</td>
<td>0.50</td>
<td>99.61</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>Brick sample is of dark red color, black spots have been visible on its surfaces including white patches.</td>
<td>1.12</td>
<td>2.76</td>
<td>87.67</td>
<td>4.48</td>
<td>0.52</td>
<td>0.84</td>
<td>0.80</td>
<td>98.19</td>
</tr>
<tr>
<td>3</td>
<td>III</td>
<td>Brick sample with red color. Fine mortar layer is visible on its upper surface, white &amp; black patches seen on the other surface.</td>
<td>0.85</td>
<td>4.48</td>
<td>77.25</td>
<td>9.85</td>
<td>0.65</td>
<td>4.62</td>
<td>1.31</td>
<td>99.01</td>
</tr>
<tr>
<td>4</td>
<td>IV</td>
<td>Flat Brick / Tile porous sample is of dark red color. White patches are visible on the surfaces.</td>
<td>0.70</td>
<td>2.71</td>
<td>76.86</td>
<td>12.85</td>
<td>0.78</td>
<td>4.34</td>
<td>1.30</td>
<td>99.54</td>
</tr>
</tbody>
</table>

NOTE: (1). The locations of the above samples is enclosed in annexure I.
Salt Analysis
The soluble salt content in the samples was analyzed qualitatively by extraction of the salt in double distilled water & determining the presence of different salts viz carbonate, sulphate, chloride and nitrate. The results are indicated in Table No.

Analytical Results of Salt analysis (Qualitatively) of Mortar Samples from Excavated Site, Kanaganahalli (Sannati), Taluk Chitapur, Dist. Gulbarga (Karnataka).

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample No</th>
<th>Carbonate (CO3--)</th>
<th>Sulphate (SO4--)</th>
<th>Chloride (CI-)</th>
<th>Nitrate (NO3-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>III</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>IV</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>V</td>
<td>++</td>
<td>++</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

Note
(1) Sign (+) indicates the presence of the soluble salt.
(2) Sign (-) indicates the presence of the soluble salt.
(3) The Locations of the above samples are enclosed in annexure-I.

Analytical Results of Salt analysis (Qualitatively) of Stone Samples from Excavated Site, Kanaganahalli (Sannati), Taluk Chitapur, Dist. Gulbarga (Karnataka)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Sample No</th>
<th>Carbonate (CO3--)</th>
<th>Sulphate (SO4--)</th>
<th>Chloride (CI-)</th>
<th>Nitrate (NO3-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>III</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>IV</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>5</td>
<td>V</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>6</td>
<td>VI</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>7</td>
<td>VII</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>8</td>
<td>VIII</td>
<td>++</td>
<td>-</td>
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<td>9</td>
<td>IX</td>
<td>++</td>
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<td>10</td>
<td>X</td>
<td>++</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>XI</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note
(1) Sign (+) indicates the presence of the soluble salt.
(2) Sign (-) indicates the presence of the soluble salt.
(3) The Locations of the above samples are enclosed in annexure-I.
Part C

PETROLOGICAL STUDIES.

Petrography of the Limestone samples (thin sections only)

The five number of stone samples were examined by thin section under microscope. The thin sections of stone samples were prepared, in stepwise manner i.e. cutting of samples in proper size, grinding & polishing, mounting on glass slide& finally grind/ polished to obtain standard thin section, in the Stone conservation Laboratory, Agra.

The thin sections so prepared were subjected to the microscopic observation under polarized light. The petrographic description of stone samples is as follows:

The rocks under consideration are essentially finely crystalline limestone, with >90% constituent minerals calcite (CaCO3). Texture and mineralogical make-up of all the five samples (ASI-I, ASI-6, ASI-10 and ASI- 10b) are identical with minor variations only. Therefore, a comprehensive petrographic description of all the samples is presented here. However, photomicrographs illustrate some of the samples specific features.

The samples are light gray to gray, finely crystalline limestone (Fig-1); in part laminated (Fig-2), typically medium- to thinly-bedded, and containing a few coarsely re-crystallized sparry calcites (Fig-3) as vug and vein infillings. The samples exhibit micro granular texture with average grain size ranges of 10-25um. The rocks show low to moderate porosity primarily defined by the bedding foliations, isolated voids (Fig-4). In response to compressional stress, pressure dissolution of calcite is observed in the form of dark jagged lines called stylolites. Stylolites and some isolated voids are partially filled with fibrous (Fig-5) as well as granular (Fig-6) Ca-silicate residues, chert etc. The interlocking mosaic texture resembles with marble but is too fine grained to suffered considerable metamorphism. Moreover the bedding foliations are still well preserved (Fig-2,7). For this reason, the rock is preferred to be called as Microcrystalline Limestone. The detrital quartz and other very fine grained silicates (clay minerals) are infrequent.

Replacement texture illustrating dissolution of calcite by siliceous fluid and formation of secondary silicate is frequently observed (Fig-8). These secondary minerals are generally associated with the porous zones consisting of patchy voids (Fig. 10) meandering stylolites and bedding planes (Fig-9). In hand specimen, most of the samples show chemically weathered solution pits. Therefore, part of the secondary alterations observed above could have been due to chemical weathering of the exposed surface of the rock.

Fig. 1  ASI 17 5X-XN Interconnected bedding pores running E-W across the slide
Fig. 2  ASI 1-2X PP. Sub-parallel bedding foliation in Limestone with Void patches (white patches towards SE corner of the image created by removal of calcite) through dissolution (?)
Fig. 3  ASI 7 10X-XN Sparry calcite filled isolated vugs and interlocked grain boundaries
Fig. 4  ASI 7-2X-XN. Bedding foliation is defined by the week planer fabric with interconnected primary porosity facilitating easy fluid movement and development of diagenetic sparry calcite.
Fig. 8a  ASI-10-50X-XN Mineral replacement texture Showing replacement of calcite by secondary Ca-silicate mineral.
Fig. 8b  Reaction texture and precipitation of secondary Ca-Silicate.
Fig. 9  ASI-6-5X-XN. Meandering stylolites as solution channels Developed due to pressure solution of carbonates and precipitation of secondary minerals (grey minerals along the channel). Probably due to chemical weathering?
Fig. 10a  ASI-10-2X-XN. Copidus acid-rock weathering (?) of limestone and precipitation of secondary mineral
Fig. 10c  ASI-10b-10X-XN. Isolated solution cavity with secondary mineral in fillings.
INSTRUMENTAL ANALYSIS.

The Mineral Characterization of the samples have been carried out by instrumental analytical techniques by X-ray diffraction and X-ray fluorescence. A total of five no. of stone samples were subjected to XRF studies, their selection was based on their difference in place of location as these are from Southern, Eastern South Eastern directions and also on their state of deterioration as defined in the sample collection report. While the XRD studies were undertaken for undeteriorated stone sample and deteriorated stone sample. The results are indicated in tables below:

### Results Of X Ray Fluorescence Studies

<table>
<thead>
<tr>
<th>Sample</th>
<th>Na2O</th>
<th>MgO</th>
<th>Al2O3</th>
<th>SiO2</th>
<th>P2O5</th>
<th>K2O</th>
<th>CaO</th>
<th>TiO2</th>
<th>MnO</th>
<th>Fe2O3</th>
<th>Sum</th>
<th>LOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSD1</td>
<td>0.013</td>
<td>0.38</td>
<td>1.63</td>
<td>11.18</td>
<td>0.056</td>
<td>0.19</td>
<td>49.63</td>
<td>0.048</td>
<td>0.034</td>
<td>0.62</td>
<td>63.79</td>
<td>37.54</td>
</tr>
<tr>
<td>DSD6</td>
<td>0.011</td>
<td>0.28</td>
<td>0.8</td>
<td>11.43</td>
<td>0.053</td>
<td>0.2</td>
<td>49.84</td>
<td>0.045</td>
<td>0.026</td>
<td>0.42</td>
<td>63.11</td>
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<td>12.38</td>
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<td>49.03</td>
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<td>0.55</td>
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<td>DSD11</td>
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### X-Ray Diffraction sample DSD

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<tr>
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<th>Score</th>
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<th>Displacement (2θ H)</th>
<th>Scale Factor</th>
<th>Chemical Formula</th>
<th>Semi Quant</th>
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<tr>
<td>*</td>
<td>01-086-2334</td>
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<td>*</td>
<td>01-085-0795</td>
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### X-Ray Diffraction sample DSD

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<tr>
<td>*</td>
<td>01-085-1108</td>
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<td>Calcium Carbonate</td>
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<td>*</td>
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SEM EDX Instrumental Analysis

In order to ascertain the detailed chemical composition of the stone sample XI having metallic inclusion and brownish red coloration of the stone matrix around the metal entrapped within the stone sample, it was analyzed by the Scanning Electron Microscope with Energy dispersive X-ray analysis.

The samples were drawn from the pure stone surface to avoid any interference from the surface impurities, the brownish red stained area of the stone matrix, as well as from the stone area exhibiting variance in the textural features. The fourth sample was drawn from the pure metallic inclusion in the stone sample.

Then, after appropriate focusing on the particles spots were chosen from which the SEM-EDX spectra was obtained. The Spectra's and the mineral compositions are annexed in Annexure II.

<table>
<thead>
<tr>
<th>E1 AN</th>
<th>Series</th>
<th>un. (wt-%)</th>
<th>C norm. (wt-%)</th>
<th>C Atom (at-%)</th>
<th>C Error (%)</th>
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<tbody>
<tr>
<td>Ca</td>
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<tr>
<td>Si</td>
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<tr>
<td>Al</td>
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<td>S</td>
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<td>1.70</td>
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<td>K</td>
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<td>1.23</td>
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<td>Mg</td>
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<td>0.18</td>
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<tr>
<td>O</td>
<td>02 K-series</td>
<td>51.90</td>
<td>53.46</td>
<td>73.16</td>
<td>6.3</td>
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Total: 97.97 100.00 100.00
Excavations at Kanaganahalli (Sannati)

Annexure II - 2

Stone, Dharwad 11 Pure
Image Size: 1000x750
MG: 543.22278x
HV: 20.0Kv

Annexure II - 3

Stone, Dharwad 11-1
Image Size: 1000x750
MG: 436.77222x
HV: 20.0Kv

Stone, Dharwad 11 Pure HV: 20.0Kv Puls th.: 22.50kcps
Spectrum: Stone, Dharwad 11 Pure

<table>
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<th>EI AN</th>
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<th>C norm. (wt-%)</th>
<th>C Atom. (at-%)</th>
<th>C Error (%)</th>
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<tr>
<td>Ca</td>
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<tr>
<td>P</td>
<td>15 K-series</td>
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<td>S</td>
<td>16 K-series</td>
<td>0.14</td>
<td>0.14</td>
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<td>8 K-series</td>
<td>54.45</td>
<td>54.12</td>
<td>72.31</td>
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Total: 100.60 100.00 100.00

Stone, Dharwad 11-1 HV: 20.0Kv Puls th.: 5.95kcps
Spectrum: Stone, Dharwad 11 Pure

<table>
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<th>C norm. (wt-%)</th>
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<td>40.06</td>
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<td>60.44</td>
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Total: 100.67 100.00 100.00
Aggregate Analysis of Mortar Samples.
The aggregate analysis of the mortar samples was carried out as per BIS Standard using a standard motorized sieve.

**Sieve Analysis Results of Mortar Samples from Excavated Site, Kanaganahalli (Sannati), Taluk Chitapur, Dist. Gulbarga (Karnataka).**

Weight of samples taken: 100gms.

| Sl. No | Sample No | Sieve Size 3.35 mm | Wt. of particles retained by sieve (gm.) | Sieve Size 1.70 mm | Wt. of particles retained by sieve (gm.) | Sieve Size 1.60mm | Wt. of particles retained by sieve (gm.) | Sieve Size 0.60mm | Wt. of particles retained by sieve (gm.) | Sieve Size 0.425mm | Wt. of particles retained by sieve (gm.) | Sieve Size 0.355mm | Wt. of particles retained by sieve (gm.) | Sieve Size 0.160mm | Wt. of particles retained by sieve (gm.) | Sieve Size 0.106mm | Wt. of particles retained by sieve (gm.) | Sieve Size 0.053mm | Wt. of particles retained by sieve (gm.) | Sieve Size <0.053mm | Wt. of particles retained by sieve (gm.) | Total Wt.in gms |
|--------|------------|---------------------|-----------------------------------------|---------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|-------------------|-----------------------------------------|
| 1      | I          | 61.4884             | 12.6455                                 | 0.1541              | 10.8503                                | 2.0730            | 1.6415                                  | 4.7195            | 1.3968                                  | 2.3165            | 1.8919                                  | 99.1775           |
| 2      | II         | 59.4740             | 11.4261                                 | 0.2197              | 11.4816                                | 2.2243            | 2.0927                                  | 5.5220            | 1.9754                                  | 3.9845            | 1.3941                                  | 99.7944           |
| 3      | III        | 60.7798             | 14.7248                                 | 0.3785              | 11.1997                                | 2.1669            | 1.6222                                  | 4.1644            | 1.3830                                  | 2.3728            | 1.0788                                  | 99.8729           |
| 4      | IV         | 59.6192             | 14.7841                                 | 0.2873              | 12.8356                                | 2.0305            | 1.5098                                  | 3.9907            | 1.1890                                  | 1.8137            | 1.2819                                  | 99.3454           |
| 5      | V          | 64.0308             | 12.0870                                 | 0.3156              | 10.7966                                | 1.9455            | 1.4465                                  | 3.8765            | 1.3450                                  | 2.4945            | 1.5081                                  | 99.8461           |
CONCLUSION

Lime Stone
All the stone samples upon quantitative wet chemical analysis were observed to be having high calcium oxide content between 45-50% approximately while the corresponding loss of ignition is observed to be in the range of 35-39% which is indicative of calcium carbonate being the major constituent of these analysed stone samples.

The instrumental analysis conducted by X Ray Fluoresceine of five samples viz. sample no. 1,6,7,10,11 also revealed approx 50% Calcium Oxide (CaO) content and 39% Loss on Ignition in all these samples.

While the X Ray Diffraction studies of Sample No. XI revealed the CaO 75% & Silicon dioxide (SiO2)25% content while Sample No.1 was analyzed to be composed of Calcium Oxide 93% & SiO2 7%. The variance in the Calcium Oxide and Silica dioxide content of Sample XI from that of sample I could be attributed to the deterioration of the stone of Sample XI.

Further, Sample XI mentioned to be deteriorated due to inner impurities was further examined and analyzed using SEM EDX studies to determine the compositional changes in the stone due to ferrous impurities & its subsequent weathering. The SEM EDX of sample XI was conducted by sampling it as three different samples viz. Pure stone sample, sample from the brownish red colored area of stone sample and of the pure metallic inclusion of the same stone sample. The analytical studies of these three samples revealed variance in content of CaO%, SiO2% & FeS% within the sample XI, -the pure metallic inclusive having Fe 51.81% S 42.79% with traces of CaO%, SiO2%.

-the pure stone sample having chemical composition of Ca 24.80%, Fe 7.86%, Si 7.01%, Al 2.45%, S 1.65%, K 1.23% and O 51.90%

-while the same stone sample of the brownish red color revealed a higher percentage of iron & aluminum in

-comparison to that of the pure sample viz Fe 18.89%, Ca 13.22%, Si 13.00%, S 7.22%, Al 5.16%, K 2.38%, O 4.0.6%.

Excavations at Kanaganahalli (Sannati)

The Petrological studies of the stone samples I, VI, X, identifies the stone as Microcrystalline limestone. It further revealed dissolution of calcite by siliceous fluid and formation of secondary silicate associated with porous zones. In other words increase in porosity of the stone this could be due to chemical weatherizing of the exposed surface of the stone.

Bricks / Tiles Samples
The four brick samples upon wet chemical analysis indicate high acid insoluble silicate content of more than 70%. The sample No.1 is quantitatively analyzed to be having CaO% of 9.94% with corresponding Loss on ignition of 8.33% which is the highest amongst all the bricks / tiles samples all the samples.

The sample No. 2 has the highest compositional content of Acid insoluble matter of 88% approx and correspondingly lowest Fe2O3% of 4.48% and negligible CaO% of 0.8% amongst all the samples.

All the brick samples are qualitatively analyzed to be having salt ion presence of carbonate, sulphate and chloride ions.

Mortar Samples
The wet analysis of the mortar samples reveals a lime rich mortar having an approximate binder: filler of 3:1. The qualitative salt analysis of the samples indicates the presence of carbonate, sulphate and chloride ions and absence of nitrate ions in all five mortar samples.

The high proportion of SiO2% & R2O3% of all the lime mortar samples in relation to the CaO & MgO can be possible in case of semi-hydraulic lime or hydraulic lime. As in case of Hydraulic lime the proportion of SI02 & R2O3 is relatively less than half. In pure lime (Non Hydraulic Lime) the percentage of SiO2% & R2O3% is generally quite low.

The chemical distinction between the general composition of eminently hydraulic lime, hydraulic lime and cement is difficult to arrive at, once these material have set after use. On the basis of the composition of the analyzed samples of mortar all the samples appear to be either hydraulic lime or composite puzzolonic mortar samples.
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