CHAPTER FOUR

PALEOGRAPHICAL ANALYSIS OF INSCRIPTIONS FROM
FOURTH CENTURY A. D. TO THE BEGINNING OF
SIXTH CENTURY A. D.

The fourth century A. D. is an important period in the history of Western Indian writing. During this period two styles of writings developed which overlapped the previous scriptal traditions of the Satavahanas and Kshatrapas pen-styles of second and third century A. D. The first style of writing is cursive and emphasized on rounded forms with distinct nail-headed tops. The character of second style of writing is the box-headed. The box-headed script became the court script of the Vakatakas. The shapes of letters show squarishness and geometrical forms. The earliest Vakataka box-headed script can be observed in the Deotek stone slab inscription of Rudrasena I (330-350 A.D.). According to Mirashi (1963:3) the Deotek stone inscription of Rudrasena is the earliest record available so-far. Thus two styles of writing developed in Western India during the fourth century A.D. 1) Nail-headed cursive script and 2) Box-headed script of the Vakatakas.

I.a. Palaeographical Analysis of Nail-headed Cursive Script:

This style of writing appears in the inscriptions of Kuda and Kanheri caves. At Kuda nail-headed cursive script appears
in inscription nos. 6, 7, 8, 10, 11 and 12. At Kanheri it occurs in inscription nos. 1, 6, 7, 8 and 10. On the basis of palaeographical features and their similarities of styles, the inscriptions of Kuda and Kanheri may be categorized as one group.

**Vowels:**

The initial 'a' occurs in inscription nos. 7 and 11 of Kuda and inscription no. 10 of Kanheri. The letter 'a' of Kuda is represented thus - ा. The letter 'a' of Kanheri is represented thus - ा.

**Consonants:**

The letter 'ka' is a longitudinal line which is bisected by a cursive horizontal line. The lower end of the longitudinal line is curved to the left side. The head of the letter is nail-headed. It occurs in inscription nos. 6, 7, 8, 10, 11 and 12 of Kuda and inscription nos. 1, 6, 7, 8, 9 and 10 of Kanheri.

The letter 'kha' appears in inscription no. 1 of Kanheri. It is represented thus - क़. The letter 'ga' occurs in inscription nos. 5, 7 of Kanheri. The letter 'ga' resembles an inverted Roman alphabet U - ꞏ with a distinct nail-headed shape on the rounded top of ga - ꞏ. The letter 'gha' appears in inscription nos. 7, 10 and 12 of Kuda and inscription
The letter 'gha' of this group of inscriptions may be categorized into two types: i) Double curved 'gha' and ii) flat base 'gha'. The double curved 'gha' is represented thus - ꞌūꞌ. The verticals are nail-headed.
The flat base 'gha' is represented thus - ꞌūꞌ. The first type of 'gha' occurs in Kuda inscription nos. 7, 10 and 11. The flat base 'gha' occurs in Kanheri no. 5. The letter 'āa' occurs in inscription nos. 7 and 10 of Kuda. It resembles Roman alphabet- c- c.

**Palatals:**

The letter 'cha' occurs in inscription nos. 7 and 11 of Kuda and inscription nos. 1 and 9 of Kanheri. The letter 'cha' of this group may be categorized into two types. The first type is pear-shaped with nail-headed top on the apex. ꞌaꞌ. The second type is represented thus - ꞌaꞌ. The first type occurs in inscription nos. 7 and 11 of Kuda and in inscription no. 1 of Kanheri. The second type occurs in inscription no. 9 of Kanheri. The medial 'a' is a slanting horizontal stroke to the right side of the head of 'cha' - ꞌaꞌ. It occurs in inscription no. 7 Kuda. The medial sign 'ā' in the case of Kanheri no. 9 is represented by a horizontal stroke whose right end point has a downward stroke. It is represented thus - ꞌāaꞌ.

**Retroflexes:** The letter 'ṭa' appears in inscription no. 16 of Kuda and inscription nos 1 and 6 of Kanheri. The letter
'ta' resembles Roman alphabet c - C. The letter 'na' occurs in inscription nos. 7, 8 and 10 of Kuda. It is represented thus - \( \overline{\alpha} \). The letter na of Kanheri is represented thus - \( \overline{\alpha} \).

**Dentals:**

The letter 'ta' of this group is represented by a U-shaped inverted curve with a vertical stroke on the rounded top. The top of the vertical is nail-headed. It occurs in inscription nos. 7, 8, 9, 10, 11 and 12 of Kuda and inscription nos. 1, 6, 8 and 10 of Kanheri. The letter 'da' resembles Nagari letter 'H'. In some cases it is angular and represented thus - \( \overline{\alpha} \). It appears in inscription nos. 7, 8, 9, 10, 11 and 12 of Kuda and inscription nos. 6-10 of Kanheri. The medial sign for 'e' is a slanting stroke to the left side of the head of the vertical. In some cases the top end of the stroke is curved. It is represented thus - i) \( \overline{\alpha} \); ii) \( \overline{\alpha} \). The letter 'dha' is oval in shape with a nail-headed shape mark on the top - 6. It occurs in inscription nos. 6, 7, 8, 10 and 11 of Kuda and inscription nos. 1, 5, 7, 8 and 9. The letter 'na' resembles 'ta'. It is represented thus - \( \overline{\alpha} \) and the top is nail-headed.

**Labials:**

The letter 'pa' of this group has various shapes. The different shapes of 'pa' appeared in the inscriptions of this group are given below.
Kuda - no. 6 - ㅝ Kanheri - no. 6 - ㅝ
Kuda - no. 7 - ㅝ Kanheri - no. 7 - ㅝ
Kuda - no. 8 - ㅝ Kanheri - no. 8 - ㅝ
Kuda - no. 10 - ㅝ
Kuda - no. 11 - ㅝ
Kuda - no. 12 - ㅝ

The medial sign for 'i' is a circle over the top of the left vertical - ㅝ. It appears in inscription nos. 7 and 10 of Kuda, and inscription no. 6. of Kanheri. The medial sign for 'u' is a short stroke to the right bottom of 'pa'. The lower end of the stroke is curved to the left - ㅝ. The letter 'ba' is represented by a squarish box. The angles of the box are rounded - ㅝ. The letter 'bha' is represented thus - ㅝ. It occurs in inscription nos. 7, 8, 10 and 11 of Kuda and inscription 1, 6, 7 and 9 of Kanheri. The medial sign for 'a' is a horizontal bar to the right side of the vertical. In some cases the horizontal bar has angular bent to the right pointing downwards. It is represented thus - ㅝ. The letter 'ma' of this group has rounded base. It is represented thus - ㅝ. The letter 'ma' appears in inscription nos. 6, 7, 8, 10, 11 and 12 of Kuda and inscription nos. 6, 7, 8 and 9 of Kanheri. Inscription no. 9 of Kanheri resembles Vākātaka 'ma'

Semi-vowels and Ra, La:

The letter 'ya' of this group has two types, i) flat based 'ya' and ii) double-curved base 'ya'. The first type of 'ya'
occurs in inscription nos. 1, 6, 7 and 9 of Kanheri. The second type of 'ya' occurs in inscription nos. 6, 7, 8, 10 and 11 at Kuda and inscription no. 8 at Kanheri. There are different styles of 'ya', they are given below.

Kuda no. 6 - ॐ
Kuda no. 7 - ॐ Kanheri no. 6 - ॐ ॐ
Kuda no. 8 - ॐ Kanheri no. 7 - ॐ
Kuda no. 10 - ॐ Kanheri no. 8 - ॐ
Kuda no. 11 - ॐ Kanheri no. 9 - ॐ

The middle vertical of 'ya' is nail-headed on the top. The medial sign for 'i' is a circle over the head of the middle line. The letter 'ra' resembles a fish-hook. It is represented thus - ॠ. The letter 'la' is represented thus. 2). The letter 'sa' is triangular in shape with nail-headed vertical on the apex. The angles of the triangle tend to become rounded- ॐ.

Fricatives :

The letter 'śā' resembles an inverted Roman alphabet U - with a horizontal bar in the middle. It is represented thus - ś. The medial sign for 'ā' is a cursive horizontal line to the right top of the letter 'śā' ś. The letter 'sa' is represented thus - ś. The top of the left vertical is nail-headed. The medial sign for 'i' is a circle over the top of the left vertical ś. The letter 'śa' of this group of inscriptions is represented thus - ś. It occurs in inscription nos. 7, 9, 10 and 11 of Kuda and inscription no. 6 of Kanheri.
The medial sign for 'ā' is a cursive horizontal line drawn from the left vertical. In case of Kanheri no. 6 'ḥā' is represented thus - ॐ.

Clusters:

In the inscriptions of Kuda and Kaheri of the above group the following clusters are noticed. They are illustrated below:

Groups with initial velar.

<table>
<thead>
<tr>
<th>Kuda</th>
<th>Kanheri</th>
</tr>
</thead>
<tbody>
<tr>
<td>kya-</td>
<td>kyo-</td>
</tr>
<tr>
<td>kri-</td>
<td>ksho-</td>
</tr>
<tr>
<td>ksha-</td>
<td>kshu-</td>
</tr>
<tr>
<td>kta-</td>
<td>kshi-</td>
</tr>
<tr>
<td>ghrā-</td>
<td></td>
</tr>
<tr>
<td>ḡga-</td>
<td></td>
</tr>
</tbody>
</table>

Group with initial Palatal:

<table>
<thead>
<tr>
<th>jka-</th>
<th>Kanheri</th>
</tr>
</thead>
</table>

Group with initial Retroflex

<table>
<thead>
<tr>
<th>ṇya-</th>
<th>Kanheri</th>
</tr>
</thead>
<tbody>
<tr>
<td>ṇyaḥ-</td>
<td></td>
</tr>
</tbody>
</table>
**Group with initial Dental**

<table>
<thead>
<tr>
<th>Kunda</th>
<th>Kanheri</th>
</tr>
</thead>
<tbody>
<tr>
<td>tvā— ṭ</td>
<td>ddha — ṭ</td>
</tr>
<tr>
<td>tra— ṭ</td>
<td></td>
</tr>
<tr>
<td>tra— ṭ</td>
<td></td>
</tr>
<tr>
<td>tta— ṭ</td>
<td></td>
</tr>
<tr>
<td>dbha— ṭ</td>
<td></td>
</tr>
<tr>
<td>dbha— ṭ</td>
<td></td>
</tr>
<tr>
<td>ddha— ṭ</td>
<td></td>
</tr>
</tbody>
</table>

**Group with initial Labial**

| Pta— ṭ         |

**Groups with initial semi vowels**

| Vya            | Yya            |

**Groups with initial r.**

<table>
<thead>
<tr>
<th>Rmma— ṭ</th>
<th>Rmma— ṭ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rvva— ṭ</td>
<td>Rvva— ṭ</td>
</tr>
</tbody>
</table>

**Group with initial sa**

| Ryya— ṭ        | Sya— ṭ         |

**Group with initial sa**

| Ryya— ṭ        | Sya— ṭ         |
The inscriptions of the Vakatakas may be classified into three distinct groups: (1) inscriptions incised on stones; (2) painted inscriptions and (2) copper plate inscriptions. Most of the letters of the Vakataka records are box-headed. Small square box is provided on the top of the letters. Difference in the style of the letters may be observed due to different writing materials. The letters which are incised on the stone are bold and beautiful. The letters of the painted inscriptions are cursive and irregular in shape. The letters which are inscribed on the copper plates are thin and angular.

II.b. Palaeographical Analysis of the Vākātaka script incised on Stones:

In this group of inscriptions the followings are included. (1) Deotek stone slab inscription of Rudrasena 1 (2) Ajanta cave inscriptions of Varāhadeva and inscription nos. 4,5,6,7 & 8 of Ajanta (3) Chatotkacha cave inscription of Varāhadeva (4) Epitaphs from Kanheri.

(1) Deotek stone slab Inscription:

The Deotek stone slab inscription is the earliest Vakataka record available so-far (Mirashi 1963:3). Most of the letters of this inscription are badly worn out. Few words can be deciphered. Only fifteen different letters are clear in this inscription. The clear letters are: ka, cha, ja, ta, tha, da, dha, na, ba, ma, ya, ra, va, ša and sa.
Some characters of this inscription show the tendency of continuing the Sātavāhana and Kshatrapa style, particularly, the letters like ja, ra, va and sa. Squarish box is provided on the top of the letters. The following palaeographical analysis of the inscription will show that the letters of this inscription are the early variety of Vākāṭaka box-headed script.

**Consonants:**

**Velar:**

The letter 'ka' of this inscription resembles in style to the letter style of the Sātavāhana 'ka'. The downward vertical elongation of 'ka' is curved to the end. The curve is bent to the left side. The horizontal bar which bisects the vertical is curved. The squarish box is on the right top of the vertical. It is represented thus - 端正.

**Palatals:**

The letter 'cha' is pear-shaped with a prominent thickened squarish head to the left side of the short vertical appended from the apex. It is represented thus - 端正. The letter 'ja' is written in the Kshatrapa Sātavāhana style which resembles Roman straight backed alphabet - 端正.

**Dentals:**

The letter 'ta' resembles a rounded hook. The right foot is elongated downwards. A triangular thickened head is on the
top of the rounded hook. The letter 'da' resembles a left opening semi-circle with a vertical stroke on the right end point. The squarish head-mark is on the right top of the short vertical. The letter 'tha' is oval in shape with a bold dot in the centre.

Labials:
The letter 'pa' is squarish in shape. The right vertical is thickened. The letter 'ba' is squarish in shape. The letter 'ma' retains the Satavahana style of 'ma'. The head of the right vertical is thickened. The thickened head is squarish in shape.

Semi-vowels and ra

The letter 'ya' is represented thus. The left vertical of 'ya' is curved inwards. The letter 'ra' resembles a fish-hook with a squarish box-shaped head on the left top. The letter 'va' is written in the Kshatrapa and Nahapana style which has a triangular base. The head of the short vertical appended from the apex is thickened as a bold square box.

Fricatives:
The letter 'sha' is represented thus. The letter 'sa' is a U-shaped curve with a prong to the left. The top of the left vertical of the U-shaped curved is thickened as a squarish box.
Remarks:

From the above palaeographical analysis it can be observed that the Deotek inscription of Rudrasena I is the earliest Vākāṭaka record. Stylistically the features of the letters are akin to the Kshatrapa and Sātavāhana pen-style. The letters which are similar in style to the Kshatrapa and Satavahana letters are ka, ga, ma, ra, cha, ja, sa and va. The only difference is the square box-shaped head of the letters. But structurally too, there is close resemblance with the structure of Sātavāhana and Kshatrapa letters. The following chart clearly shows the similarities:

<table>
<thead>
<tr>
<th>Sātavāhana style</th>
<th>Kshatrapa style</th>
<th>Deotek stone inscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>j</td>
<td>†</td>
<td>j</td>
</tr>
<tr>
<td>d</td>
<td>d</td>
<td>d</td>
</tr>
<tr>
<td>E</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td>l</td>
<td>u</td>
<td>l</td>
</tr>
<tr>
<td>u</td>
<td>u</td>
<td>u</td>
</tr>
<tr>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>J</td>
<td>J</td>
<td>J</td>
</tr>
<tr>
<td>_ATOMIC</td>
<td>_ATOMIC</td>
<td>_ATOMIC</td>
</tr>
</tbody>
</table>
From the above chart it can be observed that, the features of the Deotek inscription are similar to the features of Satavahana and Kshatrapa inscriptions. Structurally, the letters of Deotek inscription are different from the other Vākāṭaka inscriptions of Ajanta, Ghatotkacha and Kanheri. It is also different in style from the box-headed inscription of Samudragupta from Eran and the box-headed inscription of Chandragupta II from Udaygiri. The box-headed style of Eran and Udaygiri have closer affinity with the characters of later period i.e. Ajanta, Ghatotkacha and Kanheri. From these points the letter style of Deotek inscription may be taken as the earliest Vākāṭaka pen-style.

Vākāṭaka inscriptions from Ajanta and Ghatotkacha:

The Vākāṭaka inscription from Ajanta caves may be classified into two groups according to the difference of writing style: 1) squarish and angular style and 2) rounded and cursive style. The first style can be seen in the inscriptions of Varahadeva from Ajanta & Ghatotkacha caves. The second style can be observed in the inscription no. 4 of Ajanta. The differences between the two is shown in the chart.

Vowels

In the inscriptions of Varahadeva from Ajanta and Ghatotkacha and other short inscriptions from Ajanta, the following vowels occurred: a, ā, i, u, e and h.
The initial 'a' of this group is represented thus - _Address. In some cases the angular curve of the lower end of the vertical is rounded. The long initial 'ā' is a downward pointing hook to the right side of the vertical. It is represented thus - _Address.
The initial 'i' is an inverted crescent shaped curve with two dots below the two foots- _Address . The initial 'u' is represented thus - _Address . The long 'ū' resembles letter 'sa' - _Address . The initial 'e' continued the traditional style which resembles a triangle. It is represented thus - riangle.

Consonants

Velar:

The letter 'ka' of this group of inscriptions is represented thus - _Address . The vertical is bisected by a cursive concave shaped curve. The square box-head is to the left top of the vertical. In some cases the bottom of the downward elongation is rounded. The medial sign for 'i' is a circle over the top of the vertical.

The medial sign for long 'ī' is a cursive line in the centre of the circle - _Address . The medial sign for 'ā' is a horizontal bar to the right side of the vertical. The right end of the horizontal bar is bent and pointing downwards- _Address . The medial sign for 'u' is a short hook to the right side of the vertical. The hook is below the horizontal bar, bisecting the vertical - _Address . The letter 'kha' is represented as a simple hook with a rectangular box to the left side of the bottom end point.
of the hook - ə. In the case of 'kha' there is no square box-head on the top. The letter 'ga' resembles inverted Roman alphabet U - ∂ with a square box on the rounded top of the circle. The medial sign for 'i' is a circle over the square box - ∢. The medial sign for 'u' is an alternate hook drawn in continuous from the right foot of the letter 'ga'. It is represented thus - ∂. 'Gu' resembles a reverse Roman alphabet 3 - 2. The medial sign for 'ai' is two cursive stroke to the left side of the square box-shaped head. It is represented thus - ∂. The letter 'gha' is represented thus - ∂. The square box-head is to the left side of the vertical. The letter 'Aa' resembles a square which opens to the right side - ∂. No square box is on the top.

Palatais:

The letter 'cha' is represented thus - ʊ. The square box is to the left side of the vertical, which is appended on the right apex of the pear. The letter 'chha' resembles a horizontally placed figure 8 - ∞ with a vertical stroke appended from the right circle - ∂. The letter 'ga' resembles Roman alphabet straight backed - E. The medial sign for 'ā' is an upward curve extending from the middle horizontal bar E-Æ. The medial sign for 'e' is a hook to the left side of the left vertical. It is represented thus - Æ. The medial sign for 'i' is an upward
curve drawn in continuous from the horizontal upper most bar, it resembles Roman alphabet 0-Ω.

**Retroflexes.**

The letter 'ṭa' resembles a semi-circle opening to the right side. The square box is to the right top of the semi-circle. It is represented thus - .VALUE. The letter 'ḍa' resembles Nagari 'ṭa' - .VALUE with a square on the right side of the vertical stroke - .VALUE. The letter 'ḍha' resembles 'ḍa'. The only difference is the inward curve of the right bottom end - .VALUE. The retroflex 'ṇa' is represented thus - .VALUE. The medial sign for 'ā' is a small 'u' curve to the right stroke of 'ṇa'. It is represented thus - .VALUE. The medial sign for 'i' is a circle over the curve of the letter 'ṇa' - .VALUE. The medial sign for 'e' is a slanting stroke over the left side of the left stroke - .VALUE.

**Dentals:**

The letter 'ṭa' is represented thus - (VALUE. The medial sign for 'ā' is an angular horizontally placed hook to the right side of the square box-head. 'ṭa' is represented thus- .VALUE. The medial sign for 'i' is a circle over the square box of the letter 'ṭa' - .VALUE. The medial sign for long 'ィ' resembles Greek alphabet theta - .VALUE over the square box of 'ṭa' -
The medial sign for 'e' is a horizontal hook to the left side of square box of 'ta' - 🅡. The letter 'tha' resembles the Greek letter theta 'Θ'. In some cases it is represented by a circle with a dot in the centre. 🅡. On the top of the circle there is a square box - 🅡. The medial sign for 'i' is a circle over the top of the square box-head of the 'tha'. It is represented thus - 🅡. The letter 'da' is represented thus - 🅡. The letter 'dha' is oval in shape. The square box is on the top of the oval shaped circle - 🅡. The medial sign for 'a' is a short horizontal hook to the right side of the square box of 'dha' - 🅡. The medial sign for 'i' is a circle over the top of the square box - 🅡. The letter 'na' is represented thus - 🅡. The medial sign for 'a' is a horizontal hook to the right side of the square box-head of 'na' - 🅡. The medial sign for 'i' is represented into two styles i) a 'u' shaped curve and ii) a circle. Hence 'ni' is written in the following two ways; 🅡, 🅡 🅡.

**Labials**

The letter 'pa' is represented thus - 🅡. The medial sign for 'i' is a circle over the left square box-head of 'pa' The medial sign for 'u' is a downward elongation drawn in continuous from the right vertical. The lower end of elongation is rectangular in shape. 🅡 The medial sign for long 'ū' is an additional hook in the right middle of the downward
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Elongation - ı. The letter 'ba' is represented by a square box - □.

The letter 'bha' is represented thus - ☟. The medial sign for 'ə' is an angular stroke to the right side of the square box - ☟. The medial sign for 'o' is a horizontal bar whose two ends are bent and pointing downwards. 'Bho' is represented thus - ☟. The letter 'ma' is represented thus - ☟. The square box is to the left side of the left vertical. The medial sign for 'a' is a curved hook drawn in continuous from the right vertical - ☟.

Semi-vowels and ra, la,

The letter 'ya' is represented thus - ☟. The medial sign for 'ə' is a horizontal bar on the right top of the middle vertical - ☟. The letter 'ra' is represented thus - ☟. The letter 'la' is represented thus - ☟. The medial sign for 'i' is a circle over the top end point of the left vertical - ☟.

The letter 'va' is a vertical line with a square box to the left base of the vertical. The square box-head is on the left top of the vertical line. The letter 'va' is represented thus - □. The medial sign for 'ə' is an angular stroke to the right side of the vertical - ☟. The medial sign for 'e' is an angular hook to the left side of the vertical - ☟.
The medial sign for 'i' is a circle over the top of the vertical-∅.

Fricatives:

The letter 'sha' resembles 'ga'-∩ with a horizontal bar in the middle. It is represented thus - ∩. The medial sign for 'ā' is a horizontal line to the right top of 'sha'. The right end of the horizontal line is bent and pointing downwards - ∓. The medial sign for 'o' is a curved line over the top of the letter 'sha' - √.

The letter 'sa' is represented thus - ∪. It is squish in feature. The medial sign for 'ā' is a horizontal bar to the right side of the box forming an angle to its right end ∪. The medial sign for 'e' is a horizontally placed angular hook to the left side of the square box - ∪. The medial sign for 'i' is a circle over the top of the left vertical. ∪. The letter 'ha' resembles 'pa' - ∪, with a curve to the right side of the right vertical - ∪.

Clusters

In the Vakataka inscriptions of Varahadeva from Ajanta and Ghatotkacha caves many clusters are occurred. Some of the important clusters are illustrated below.
3. **Group with initial Dental**

| tya | ॐ |
| tra | ॐ |
| ddha | ॐ |
| ddhi | ॐ |
| dbhi | ॐ |
| dya | ॐ |
| ndra | ॐ |
| ndhra | ॐ |
| nta | ॐ |

4. **Group with initial Labial**

| mbha | ॐ |
| rjji | ॐ |
| rjva | ॐ |
| rnya | ॐ |
| rmme | ॐ |
| rvva | ॐ |
| ryya | ॐ |

5. **Group with initial r**

| rjji | ॐ |
| rjva | ॐ |
| rnya | ॐ |
| rmme | ॐ |
| rvva | ॐ |
| ryya | ॐ |

6. **Group with initial sa, sa and ṣa**

| pya | ॐ |
| pra | ॐ |
| p | ॐ |
| bda | ॐ |
| mya | ॐ |
| mma | ॐ |

| ssa | ॐ |
| sthi | ॐ |
| sya | ॐ |
| sta | ॐ |
Recently Mrs. Gokhale (eds. Asher & Gai 1985:55) had discovered about twenty new inscriptions from Kanheri. The inscriptions are epitaphs. They are written either in the box-headed variety of Brahmi or nail-headed variety of the fifth century A.D. The characters of the box-headed variety are closely related to those of Ajanta and Ghatotkacha cave inscriptions (Gokhale 1985:56). Eight photos of the epitaphs have been published in the Indian Epigraphy edited by Asher and Gai (1985). Out of these eight photo copies four inscriptions are selected which are written in pure-box-headed style. They are; pl. nos. 95, 97, 99 and 101 (Asher and Gai: 1985). All the epitaphs are short inscriptions of two or three lines.

**Palaeographical analysis:**

**Vowels:**

In these group of inscriptions selected for study only two vowels occur 1) 'a' and 2) 'ā'. The letter 'a' is
represented thus - य. The long initial अ is formed by adding a hook to the right side of the vertical. The hook is in the middle of the vertical and pointing downwards. It is represented thus - य.

Consonants

The following different consonants occurred in these four short inscriptions selected for analysis. They are: chha, ja, तa, नa, ta, tha, da, dha, pa, ba, bha, ma, ya, ra, la, va, sa, and ha.

Palatal:

The letter 'chha' is represented thus - झ. It resembles a horizontally placed figure 8 - ∞ with a vertical short strok on the middle of the curve. The square box is to the left top of the vertical. The letter 'ja' resembles cursive backed Roman alphabet – ू. The medial sign for 'अ' is a circular curve drawn upward from the middle bar of 'ja'. The curve line encircled the left cursive back of 'ja'. It is represented thus – ू.

Retroflex:

The letter 'तa' resembles a left opening semi-circle with a square box on the top right end of the semi-circle. The medial sign for 'i' is a circle over the square box – ट. The letter नa is represented thus – न.
Dentals:

The letter 'ta' is represented thus - ܬ . The square box is on the left top of the vertical. The medial sign for ܬ is a horizontal hook to the right side of the vertical.

The letter 'tha' is represented by a circle with a dot in the centre - ܬ . The square box is on the top of the circle. The medial sign for long ܬ is a downward vertical elongation from the bottom of the letter 'tha'. The lower end of the downward elongation is rectangular in shape. A short hook is to the left of the downward vertical elongation. Thū is written thus - ܬ . The letter 'da' is represented thus - ܕ . The letter 'dha' is rectangular in shape - ܕ . The letter 'na' is represented thus - ܢ . The medial sign for ܢ is a U shaped curve to the right side of the vertical - ܢ .

Labials:

The letter 'pa' is represented thus - ܢ . The square box is to the left vertical. The letter 'bha' is represented thus - ܒ .

Semi-vowels and Ra, la.

The letter 'ya' has a double-curved base. It is represented thus - ܝ . The letter 'ra' is represented thus - ܪ . The base of 'va' is rectangular in shape. It is represented
thus - ʒ . The medial sign for 'i' is a circle over the square box - Ҁ . The letter 'la' is cursive in form. It is represented thus - ʴ .

Ejectives:

The letter 'na' is a U-shaped curve with an angular hook to the left side. The top of the left vertical is box-headed. It is represented thus - ن . The letter 'ha' is represented thus - ہ .

Remarks:

The palaeographical features of the above letters from Kanheri of fifth century A.D. clearly show that they resemble the characters of वृक्षेद्याके inscription at Ajanta and the Ghatotkacha caves. The scriptal style of the Kanheri epitaphs has a close relationship with the scriptal style of the वृक्षेद्याके inscription at Ajanta. These epitaphs clearly indicate the phase of वृक्षेद्याके script at Kanheri. According to Spink (1981:109,121) the development of later Buddhist caves at Ajanta was made during 450-480 A.D. Ajanta cave no. 16 which contains the inscription of वृक्षेद्याके might be dated around 450 A.D.

While discussing the epitaphs from Kanheri Mrs. Gokhale (1985:56) remarked that the epitaphs contain the names of teachers along with their scholastic merits. Some epitaphs are written in box-headed variety of ब्राह्मी and some are
nail-headed variety of Brāhmī. Mirashi (1968:1:182-194) has interpreted that the narrative in the eight chapter of Dasakumar charitra which entitled as Visrutcharita reflex the truthful political condition in Vidarbha. Mirashi has further identified the great king Puṇyavarman with the Vākāṭaka emperor Harisena who was the overlord of the extensive kingdom which included Asamaka, Kuntala, Mrika, Murala, Nasikya, Malva, Vanavasi and Konkan. Except this scanty reference there was no sound evidence to prove the westward march of Harisena. The epitaphs at Kanheri, which are written in the box-headed and nail-headed Brāhmī script, have provided entirely a new phase at Kanheri. Here is the synchronism between the literary and inscriptional evidences. With the intrusion of the Vākāṭaka king Harishena box-headed variety of Brāhmī was introduced at Kanheri and as the Vākāṭaka phase was very short it disappeared soon.

A close study of the palaeographical features of the epitaphs leads to conclude that, the box-headed variety and nail-headed variety were introduced at Kanheri along with the Vākāṭaka intrusion. These pen-styles definitely indicate the Vākāṭaka phase. At the advent of the Traikutakas the Vākāṭaka phase disappeared. But this short-lived phase made a remarkable impact on the cultural history of Kanheri (Gokhale, eds Deo & Paddaya 1985:115).
Palaeographical analysis of painted inscriptions

From the caves of Ajanta thirty painted inscriptions have been reported by Burgess and Bhagwanlal Indraj (1976:80-88). The characters of the painted inscriptions are very irregular in shapes and styles. Some of the letters are emphasized on angular forms while some of the letters are emphasized on cursive forms. No proper balance is maintained in the letters of painted inscriptions. The shape and sizes of the letters are also varied from one letter to another according to the convenience of the writer. In fact, the writings were done by soft brush with coloured paste. Hence the writers could not maintain consistency in the shapes and sizes of the letters. The following analysis shows the different styles of the letters occurring in the painted inscription of Ajanta:

Vowels:

The initial 'a' occurs in inscription no. 2. It is written thus. The letter 'ā' appears in inscription no. 15. It is represented thus. The initial 'i' is represented thus. The letter 'u' occurs in inscription nos. 2 and 10. It is written thus.  

Consonants

Velars:

The letter 'ka' of the painted inscriptions is written in
the following styles as given below:

Inscription no.

2  _______ ka
4  _______ ku
10 _______ ka
17 _______ ka
23 _______ ke
24 _______ ka
30 _______ ka

The letter 'kha' is represented thus. It occurs in inscription nos. 8 and 30. The letter 'ga' resembles an inverted U shaped curve. In some cases the rounded top of the letter is nail headed. The medial ā and ū signs are attached in the following manners.

Inscription no.

1  _______ gu
4  _______ gu
8  _______ ga
21 _______ gu
30 _______ gu
The letter 'gha' is represented thus . It occurs in inscription no. 21.

Palatals:
The letter 'cha' is written the following different styles:

Inscription no.

2 —— cha —
4 —— chā —
7 —— chei—
17 —— che —

The letter 'ja' is written in two different styles:
1) straight backed 'ja' and 2) cursive backed ja. The straight backed 'ja' resembles Roman alphabet E . It occurs in inscription no. 27. The cursive backed 'ja' is represented thus—^ . It occurs in inscription nos. 25, 26, 29.

Retroflexes:
The letter 'gha' is written thus— . It occurs in inscription no. 16. The letter 'ña' is represented thus—.

Dentals:
The letter is written in different styles as given below:

Inscription no.

4 —— -ta —
The letter 'da' is written in the following different styles:

**Inscription no.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Style</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>da</td>
<td><img src="da1.png" alt="Image" /></td>
</tr>
<tr>
<td>2</td>
<td>de</td>
<td><img src="de2.png" alt="Image" /></td>
</tr>
<tr>
<td>3</td>
<td>di</td>
<td><img src="di3.png" alt="Image" /></td>
</tr>
<tr>
<td>4</td>
<td>da</td>
<td><img src="da4.png" alt="Image" /></td>
</tr>
</tbody>
</table>
The letter 'dha' occurs in most of the inscriptions.
The shape of the letter is oval in shape with a triangularly thickened head on the top. The letter 'na' is represented thus—\[\text{\textbullet}\text{\textbullet}\text{\textbullet}\text{\textbullet}\] . In some cases the head of the letter is triangular and in some other cases the head is square in shape.

Triangular head or nail headed 'na' \[\text{\textbullet}\text{\textbullet}\text{\textbullet}\text{\textbullet}\]

Box-headed 'na' \[\text{\textbullet}\text{\textbullet}\text{\textbullet}\text{\textbullet}\]

The letter 'pa' is written in different styles. The shape of the letter is varied from one inscription to another. In some cases, pa is box-headed, in some other cases 'pa' is nail-headed and in some cases there are no head marks. The different styles of 'pa' with medial signs are given below:

<table>
<thead>
<tr>
<th>Inscription no.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pu</td>
</tr>
<tr>
<td>2</td>
<td>pi</td>
</tr>
<tr>
<td>4</td>
<td>pa</td>
</tr>
<tr>
<td>5</td>
<td>pa</td>
</tr>
<tr>
<td>10</td>
<td>pa</td>
</tr>
<tr>
<td>14</td>
<td>pa</td>
</tr>
<tr>
<td>15</td>
<td>pu</td>
</tr>
<tr>
<td>17</td>
<td>pa</td>
</tr>
<tr>
<td>22</td>
<td>pi</td>
</tr>
</tbody>
</table>
The letter 'ba' is represented by a square box.
The letter 'bha' is written in two different styles. The first style resembles a reverse Roman alphabet h - d. The second style of 'bha' is represented thus - d. The medial sign for 'i' is a circle over of the vertical - i.

The letter 'ma' is written in the following different styles:

Inscription no.

<table>
<thead>
<tr>
<th>No.</th>
<th>Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>- ma</td>
</tr>
<tr>
<td>5</td>
<td>- ma</td>
</tr>
<tr>
<td>6</td>
<td>- ma</td>
</tr>
<tr>
<td>9</td>
<td>- ma</td>
</tr>
<tr>
<td>10</td>
<td>- ma</td>
</tr>
</tbody>
</table>
Inscription no.

22 —— - ṭa -
25 —— - ṭa -
26 —— - ṭa -
27 —— - ṭa -
28 —— - ṭa -

Semi-vowels and ra, la.

The letter 'ya' is written in various ways. In some cases, the middle vertical is thickened. The shape of the thickened middle vertical is varied from one to another. The different styles of 'ya' are written as follows.

Inscription no.

1 —— - ya -
2 —— - ya -
4 —— - ya -
10 —— - ya -
11 —— - ya -
13 —— - ya -
The letter 'ra' resembles a fish-hook. The top of the vertical is thickened. The letter 'la' appears in inscription nos. 7, 22 and 30. They are written in the following styles.

Inscription no.

7  ——  - la -  ם

22  ——  - la -  ל

30  ——  - la -  נ

The letter 'va' is written in various forms. The different
forms of 'va' are given below:

Inscription no.

3 —— va —
4 —— va —
5 —— va —
7 —— va —
10 —— va —
14 —— va —
15 —— va —
18 —— va —
25 —— va —
30 —— va —

Fricatives:

The letter 'sa' is represented thus. The letter 'sha' is written thus. The letter 'sa' is represented thus. In some cases the top of the left vertical is thickened. The shape of the thickened head is varied in shapes. Some of them are triangular and some of them are squarish. The letter 'ha' appears in inscription no. It is represented thus.
Clusters:

The clusters of Ajanta painted inscriptions are very interesting. The following different compound letters occurred in the painted inscriptions of Ajanta:

Group with initial velars:

kya-  
kye-  
kyo-  
kshe-  
kshe-  
kshe-  
ksam-  
gya-  

Group with initial palatals:

jna-  
jna-  
ncha-  

Group with initial dentals:

- tra - 
- tra - 
- tro - 
- tta -
- tvā -
- dra -
- dra -
- dbha -
- nta -
- ndra -

Group with initial labials:

- pta -
- pra -
- mro -
- mya -
Group with initial semi-vowels

\[ \text{vura - } \]

Group with initial fricatives.

\[ \text{syā - } \]
\[ \text{syā - } \]
\[ \text{syēi - } \]

Palaeography of Copper Plate inscriptions.

The Copper Plate records of the Vākāṭakas are written in two styles: 1) nail-headed and 2) ox-headed. The nail-headed appears in the copper plate record of Prabhavatigupta. The characters are mostly nail-headed. The letters show an admixture of the northern and southern peculiarities, the former predominating over the latter (Mirashi 1963: 6).

The following peculiarities are noticed in the copper plate inscription of Prabhavatigupta: The left foot of the letter 'ga' is curved towards the right - \( \text{ṃ} \). The left hook of the letter 'sa' is like a loop - \( \text{ḷ} \). The top bar of the letter 'ṇa' is double-curved - \( \text{ṇ} \). The letters a, ka and ra have a curve turn to the left at the bottom of their verticals which are familiar in the letters of Ajanta, Kanheri and Ghatotkacha cave inscriptions.
The letter 'da' has a round back-

The characters of the box-headed script of the copper plate inscriptions are similar in structure with the box-headed script written on the stones (n6b). The differences are the boxes on top of the letters. In case of copper plate inscriptions, the square boxes are not scooped out. The shape of the letters are more emphasized in length compared to the stone inscriptions. The letters are more squarish and angular in form than those of the stones. But the script structure the same with the structures of the stone inscriptions (n6b) which are found in the Vakataka records of Ajanta, Ghatotkacha and Kanheri.

Diffusion of box-headed script:

The box-headed script which was the court script of the Vakatakas can be observed in the Eran inscription of Samudragupta and in the Udaygiri inscription of Chandragupta II. It also occurs in the copper plate inscriptions of Sarbhapura and Tivara king of Kosala (Buhler 1959:23). The similarities of the letters of these different regions are shown in chart 2 of chapter One.

The palaeographical similarities of the box-headed scripts of these different regions seem to prove that the box-headed style diffused from one region to another. According to Hirashi (1963:3) the Deotek stone slab inscription of Rudrasena I (c. 330 - 350 A.D.) is the earliest Vakataka record available
so far. The letters of this inscriptions are box-headed. On the basis of palaeographical features, the letters of the Deotek inscription may be considered as the proto-box-headed script of the Vakatakas. The letters of the inscription show a close structural relationship with the earlier characters of the Satavahanas and Kshatrapas Kshaharatas (ii:a). The characters of the Deotek stone slab inscription may be considered as the earliest box-headed variety available so-far.