CHAPTER TWO

PALAEOGRAPHY OF INSCRIPTIONS FROM THIRD CENTURY B.C. TO FIRST CENTURY A.D.

Eminent scholars of Indian palaeography like Upasak (1960:2) and Dani (1963:48) had already discussed that the Brahmi script of Asoka edicts had maintained a common standard style irrespective of local and regional scriptal variations. Bühler (1959:51,52), the pioneer of Indian palaeography, however believed the existence of regional scripts. Pandey (1957:17) also had similar opinion. But in the later works done by Upasak (1960:29) and Dani (1963:35) it is proved that no regional script can be distinguished in the Brahmi script of Asokan edicts, though there are the instances of individual mannerisms. However, such uniformity of scriptal style and singularity of inspirations became unknown in post-Asokan periods. In later ages regional scripts developed.

The earliest best example of scriptal development can be seen in some of the letters of Nagarjunā Hill Cave inscription (c. 220 B.C.) of Dasharatha. In comparison to the letters of Asokan edict, the vertical of the letters na, ya, and ua of Nagarjunā Hill cave Inscription have been strikingly reduced. A slanting form of ja, in its vertical line also appears which became very common in later ages (Upasak 1960:173). The development of style in some letters can be noticed in most of the early post Asokan inscriptions, for instance, Barhut
inscription of the time of Śuṅgas and Garuḍa pillar inscription of the time of Bhagabhadra. Verma (1971:22–40) has critically analysed the early post Aśokan scripts in the most satisfactory manner and inferred that the letters of these early post Aśokan inscriptions exhibit advanced tendencies and developments. To discuss the palaeography of these inscriptions may be a mere repetition.

So far the present available Brāhmi inscriptions of Western India are concerned, besides Aśokan edicts of Sopara, the earliest post Aśokan inscription is the Kolhapur relic box inscription. The letters of this inscription maintained pure Mauryan Aśokan style.

The shape of Aśokan letters has usually been taken as the basis for dating Brāhmi inscriptions. In the same manner the inscriptions of early post Aśokan Brāhmi script of Western India which do not mention any date or any royal name can be dated approximately by using the Aśokan Brāhmi script.*

*Scripts have generally given name prevalent to the particular period or area. For instance, the Brāhmi style of writing in which the Guptas wrote their records is generally known as Gupta Brāhmi; the Brāhmi style in which the Śatavāhanas wrote their records is known as Śatavāhana script and the script in which the Vākaṭakas wrote their records as Vākaṭaka script. In the same context, the Aśokan Brāhmi script signifies the Brāhmi script used in the time of Aśoka.
In the sequence of palaeography the early inscriptions of Western India may be classified into four main groups as given below:

Group - I

i) The Bombay-Sopara fragmentary of eighth rock edict
ii) Kolhapur relic box inscription

Group - II

Pitalkhora inscription no. 1, Bhaja inscription no. 1
Bhaja wooden railing inscription; Ajanta inscription no. 1, Kondane inscription and Nasik inscription no. 1.

Group - III

Nanaghat inscription of queen Nāganikā, Nanaghat figure label inscriptions, Pitalkhora inscription nos. 3-7, Nasik inscription no. 2 and Pitalkhora inscription no. 2.

Group - IV

Bedsa inscription nos. 1-3, Nasik inscription no. 4
Karla inscription nos. 1-11, and Junnar inscription no. 7.

**Chronology of the Undated and controversial Dates of the Inscriptions:**

So far the dates are concerned, no inscription of the above groups selected for study have mentioned any particular
date. However, some inscriptions have mentioned the name of the contemporary ruler of the inscription and in some cases there are names of royal family. For instance, the Nasik cave inscription no. 1 and Nanaghat inscriptions mention the rulers of the time of the inscriptions. In Nasik no. 1 the name of Sātavāhana ruler Kaṇha (Krishna) is mentioned and in the Nanaghat inscriptions the names of queen Nāgānīka; Siri Satakani; prince Bhayala; prince Hakusiri and prince Satavahana are referred to, these names have helped in dating the inscriptions. But some of the short inscriptions viz, Kolhapur relic box inscription, Pītalkhora inscription nos. 1-7, Ajanta no. 1 and 2, Bhaja no. 1, Bhaja wooden railing inscription, Bedsa nos. 1-3, Karla nos. 1-11 and Junnar no. 7 do not mention any royal name. Therefore, the dating of these inscriptions can only be done on the basis of palaeography.

**Date of Kolhapur Relic Box Inscription:**

The Kolhapur relic box was discovered in the excavation of the foundation stone of a large stupa at Kolhapur (Burgess and Bhagwanlal Indraji 1976:39). The inscription is written on the lid of the square box. Except the letter ra, the other letters of this inscription have maintained pure Mauryan style of writing. On the basis of palaeographical peculiarities the date of this inscription may be assigned around second century B.C. (see the palaeographical analysis of Group I inscription).
Dates of the Group II Inscriptions.

Though the inscriptions of Pitalkhora no. 1, Ajanta no. 1, Bhaja no. 1, Bhaja wooden railing inscription and Nasik no. 1 are categorized in one group, still there are stylistic differences and accordingly they may be placed in the following order:

i) Pitalkhora inscription no. 1.
ii) Ajanta inscription no. 2.
iii) Bhaja wooden railing inscription.
iv) Bhaja inscription no. 1
v) Nasik inscription no. 1.

Except Nasik no. 1 the other above inscriptions do not mention any royal name. Palaeographically, the characters of Pitalkhora no. 1, Ajanta no. 1, Bhaja wooden railing inscription and Bhaja inscription no. 1 have closer affinity to the older Mauryan style than the Nasik no. 1. It is discussed in the palaeographical analysis of group II inscriptions. From the palaeographical point of view they may be placed earlier to Nasik no. 1, that is before the second half of first century B.C.

Date of Nasik Inscription no. 1.

There are diverse opinions among the scholars regarding the date of Nasik inscription no. 1. The inscription
records thus "when Kṛishṇa of the Sātavāhana family (ruling as) king, the cave has been caused to be made by the Mahamatra Samana" (Burgess 1975:98). From the text of the inscription it can be said that this inscription was written during the time of Kṛishṇa of the Sātavāhana. But the problem facing the scholars is the date of the reign of Kṛishṇa. Nagaraju (1981:56) assigned the date of the inscription towards the beginning of second century B.C. Mirashi (1981:17) approximately fixed the date of Simuka around 200 B.C., who was succeeded by Kṛishṇa. His approximate dating of Simuka suggests that this inscription was written a few years after second century B.C. Dehejia (1972:47) puts the date of the inscription at c. 90-80 B.C. On the basis of palaeographical peculiarities, the date of Nasik inscription of the time of Kṛishṇa may be placed around second half of the first century B.C.

In the absence of contemporary inscriptive evidence from the region, the writing of Nasik inscription no. 1 of the time of Kṛishṇa may be compared with the standard writing of the Besnagar Garuḍa Pillar inscription of the time of the Bhagabhadra. The inscription of Besnagar is assigned by Sircar (1942:90) to the end of second century B.C. or beginning of first century B.C. If Nasik inscription no. 1 was written during second century B.C., the letters should
not have such stylistic differences, particularly during second century B.C., where regional and local scriptal tradition were yet to be developed. The script style of Nasik inscription no. 1 was comparatively later than the script style of Besnagar inscription. The following palaeographical comparison shows the scriptal differences of the two inscriptions.

Besanagar Inscription

Nasik Inscription of the time of Kanha

<table>
<thead>
<tr>
<th>ka</th>
<th>➕</th>
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<tbody>
<tr>
<td>ga</td>
<td>➕</td>
<td>➕</td>
</tr>
<tr>
<td>na</td>
<td>➕</td>
<td>➕</td>
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<tr>
<td>ta</td>
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<tr>
<td>da</td>
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<td>➕</td>
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<tr>
<td>na</td>
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<td>➕</td>
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<tr>
<td>ma</td>
<td>➕</td>
<td>➕</td>
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<tr>
<td>ra</td>
<td>➕</td>
<td>➕</td>
</tr>
<tr>
<td>la</td>
<td>➕</td>
<td>➕</td>
</tr>
<tr>
<td>va</td>
<td>➕</td>
<td>➕</td>
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</tbody>
</table>
The difference in the letters should not be taken as a mere stylistic change. The change in the script is always taken as cultural chronometer.

The above comparison of the scripts clearly shows that the inscription of Besnagar is older in style than the Nasik inscription no. 1 of the time of Krśňa. The date of Besnagar inscription is placed in second century B.C. or in the beginning of first century B.C. (Sircar, 1942:90). On the basis of palaeographical peculiarities, the Nasik inscription no. 1 therefore, can not be placed earlier than the Besnagar inscription of Heliodorus.

**Date of Nanaghat Inscriptions.**

Like the Nasik inscription no. 1 there are different opinions among the scholars about the date of Nanaghat inscriptions. Scholars have accepted that, the queen mentioned in the first line after the obeisance to god is
none other than the Naganika mentioned in the label inscription of Nanaghat (Mirashi 1981, II:9). The problem is about the date of queen Nāganikā, as the chronology of the early Satavahana rulers is not free from controversy. Buhler (1959: 57,58) believed that these inscriptions (no. I & II) of Nanaghat can not be later than 150 B. C. Nagaraju (1981:56) assigned the date of these Nanaghat inscriptions in 150 B. C. Dehejia (1972:47) assigned the date of Nanaghat inscriptions in between 70 and 60 B. C. Sircar (1942 :184) placed the date in between c. 30-20 B. C. JadHAV (1980:17) placed the date at 50 B. C. According to Dani (1963 : 94) the Nanaghat inscriptions should not be placed earlier than the first century A. D.

Palaeographically the Nanaghat inscriptions of Nāganikā do not belong to second century B. C. The characters of Nanaghat inscriptions are considerably developed and deviated while compared to the characters of Mauryan Brāhmī script of Ashoka edicts. The letters of Nanaghat inscriptions are akin to the letters of Nasik inscription no. 1 of the time of Krishṇa. In the sequence of palaeography, the Nanaghat inscriptions of Nāganikā and the Nasik inscription no. 1 may be categorised in one group. Similarities of the scriptal styles between the Nasik inscription no. 1 and the Nanaghat inscriptions are given below.
From the above chart it may be observed that, the Nasik inscription no. 1 and the Nanaghat inscriptions are in the same scriptal tradition. Palaeographically the Nanaghat inscriptions may be considered as the contemporary
of Nasik inscription no. 1. Palaeographically the date of Nanaghat inscriptions of Nāgānikā may be placed around 40-30 B.C.

Palaeographical Analysis of Group I Inscription.

1) Bombay-Sopara Fragment, the Eighth Rock Edict of Asoka.

The eighth rock edict of Asoka have been discovered from Sopara by Pandit Bhagwanlal Indraji (Hultzsch 1969:15). The fascimile of the edict have been published in corpus Inscriptionum Indicarum by Hultzsch (1969:116). Most of the letter of the edict have been damaged and difficult to decipher. Only six line are deciphered and the remaining four lines are broken. Only few words occurred as the edict is fragmentary.

Only twenty different letters appear in this fragmentary edict, they are: a, i, kha, ga, cha, ṭa, ṭha, dha, dha, ṭa, tha, da, dha, na, pa, bha, ma, ya, ra, sa, and ha. Many parts of the letters are badly worn out and difficult to describe the exact features of them.

Vowels:

Here, the letter 'a' is slightly cursive, the two angular straight lines touching the vertical are curved instead of straight. It is represented thus - ƙ.
The initial 'i' is represented by three dots placing in right angle triangle position - •:

**Consonants**

**Velars.**

The letter 'kha' resembles a simple hook with a bold dot at its lower end point -  . The letter 'ga' is composed of two lines forming an acute angle on the top  . It resembles an inverted Roman alphabet V.

**Palatals:**

The letter 'cha' is represented by a small circle to the left side of a vertical line - d.

**Retroflexes**

The letter 'ta' resembles a semi-circle opening to the left -  . The letter 'tha' is represented by a circle- 0.

The letter 'dha' is represented thus - 0.

**Dentals:**

The letter 'ta' is represented as a short vertical line with two forks at the bottom end point of the vertical -  . The letter 'tha' is represented by a
circle with a dot in the centre \( \circ \). The letter 'dha' resembles Roman alphabet - D. The letter 'na' is a vertical line standing perpendicularly in 90° over a horizontal bar - \( \perp \).

**Labials:**

The letter 'pa' resembles a fish-hook - \( \cup \). The letter 'bha' is represented as a horizontal line with two vertical lines at its either ends, the left pointing downwards and the right upwards, an additional vertical line is drawn in parallel to the lower one to its right - \( \overline{r} \). The letter 'ma' is represented by placing a semi-circle upon a circle.

**Semi-Vowels and ra**

The letter 'ya' is represented thus - \( \downarrow \), in which the lower portion has two bends or curves. The letter 'ra' is represented by an undulating vertical line \( \downarrow \).

**Fricatives**

The letter 'sa' resembles a fish-hook - \( \cup \) with a hook to the left side - \( \cup \). The letter 'ha' resembles pa with an additional dash attached below the top of the right vertical stroke. It is represented thus - \( \cup \).
Kolhapur Relic-Box Inscription:

Only eleven different letters occur in the relic-box inscription of Kolhapur. They are: a, ka, ga, ta, da, dha, na, ba, ma and sa. The letters of this inscription have retained pure Mauryan traditional style of writing.

Vowels:

Only one initial 'a' occurs in the relic box inscription of Kolhapur. It resembles standard 'a' of Asokan edicts. Letter 'a' is formed by two angular straight lines meeting in the middle point of a vertical line - X.

Consonants

Velars

The letter 'ka' is represented by a simple cross - +. A vertical line is bisected in the middle of a horizontal bar in right angles - +. The medial sign for 'ga' is very peculiar in style, it is represented by a downward stroke from the right end point of the horizontal bar which bisects the vertical - f. The letter 'ga' is composed of two lines forming an acute angle at the top. It resembles an inverted Roman alphabet V - ∩.
The medial sign for 'u' is a short horizontal bar to the right end point of 'ga'-\(\checkmark\).

**Dentals**

The letter 'ta' is represented as a small vertical line with two forks at the bottom end point of the vertical. The angle of letter 'ta' is small in Kolhapur relic box inscription while compared to the standard 'ta' of Aśoka.

<table>
<thead>
<tr>
<th>Standard Aśokan</th>
<th>Kolhapur relic box</th>
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<tbody>
<tr>
<td>(\text{ta} - \checkmark)</td>
<td>(\text{ta} - \checkmark)</td>
</tr>
</tbody>
</table>

The letter 'da' is a semi-circle opening to the left with its end elongated vertically to the top and bottom. The medial sign for 'ā' is a horizontal stroke to the right side of the upper vertical. The letter 'dha' is represented by a semi-circle with its diameter to the right. It resembles a reverse Roman letter D - \(\checkmark\). The letter 'na' is a perpendicular line over a horizontal bar. The horizontal bar is shorter in length than the perpendicular.

**Labials**

The letter 'ba' is square in shape. The letter 'ma' is represented as a semi-circle placed upon a circle.
Semi-vowels and Ra

The letters 'ya' and 'va' do not appear in this short inscription. The letter 'ra' is represented by a vertical line. The medial sign for 'a' is a cursive bar to the right side of the vertical line. It is represented thus - .

Fricatives

The letter 'sa' resembles a fish-hook - with a downward pointing hook to the left side - . The letter 'ha' also resembles a fish-hook with an additional dash attached below the top of the right vertical stroke - .

Cluster

Only one consonant cluster 'mha' occurs in this inscription. It is represented thus - .

Remarks

The above palaeographical analysis of the relic box inscription shows that the letters of Kholapur inscription maintained the traditional Mauryan style of writing. The letter 'ra' is represented by a vertical line which is represented in the edicts of Asoka by an undulating vertical line. There is the tendency of
reducing the semi-circular curve of the letter 'da'. The development of these two letters shows that this inscription was written in the early post-Mauryan period. The features of the letters a, ta, ma and ha further suggest that this inscription was written earlier to the other cave inscriptions of Western India. The date of this inscription may, therefore, be placed by the end of second century B.C.

Palaeographical Analysis of Group II and Group III Inscriptions.

In these two groups only two different initials 'a' and i are occurred. The letter 'a' appears in Kondane and Nanaghat inscriptions of queen Nāgānīka. Among the inscriptions of Western Indian caves the long 'ī' occurs for the first time in the inscription no. I of queen Nāgānīka of Nanaghat. According to Upasak (1960:46) the shape of long initial i, during the time of Asoka, is not known.

Letter 'a' of these two groups are three types. The first type resembles Asokan angular 'a', consisting of two angular straight lines touching almost in the middle of a straight vertical line to the right - ꞌ. The second type is the cursive form of 'a'. The two left arms are curved instead of straight - ꞌ. Both the types are occurred in the Nanaghat inscriptions of Nāgānīka. The third type
occurs in the inscription of Kondane. In Kondane inscription the two angular lines of 'a' proceed to meet at a point somewhere in the middle of the vertical line, but instead of meeting there, they touch the vertical line at two different places leaving some space between them. The long initial 'I' is represented by four dots. It is represented thus:

\[ \_\_\_\_ \]

Consonants

Velars

The letter 'ka' of these two groups may be classified into two varieties. The first variety of 'ka' is represented by a short cross. The horizontal bar which is bisecting the vertical line is almost equal in length to the vertical line. In the second variety the horizontal bar which bisects the vertical is comparatively shorter than the vertical line. The first variety of 'ka' appears in Pitalkhora inscription no. 1 and Nanaghat inscriptions. The second variety occurs in Ajanta inscription no. 1, Pitalkhora no. 7 and Kondane inscription.

The medial sign for 'u' is a short horizontal stroke to the right end point of the lower vertical. It is represented thus:

\[ \_\_\_\_ \]

In case of Nanaghat inscriptions and Nasik no. 1
the angular stroke of medial 'u' is rounded. It is represented thus - t.

The letter 'kha' resembles a simple rounded hook. It occurs in Ajanta no. 1 and Nanaghat inscriptions of queen Naganika. In some cases the downward elongation of the letter 'kha' is slightly bent to the right. It resembles note of interrogation sign - ? . The medial sign for 'i' is a cursive upward stroke drawn from the right top of the hook - γ .

There are two types of 'ga' in these two groups of inscriptions; (i) acute angled 'ga' and (ii) obtus angled 'ga': The first type of 'ga' resembles inverted Roman alphabet V - A . The second type of 'ga' is represented thus - A . The first type of 'ga' occurs in Pitalkhora no. 1, Bhaja no. 1, Pitalkhora nos. 3 and 5. The second type of 'ga' occurs in Bhaja wooden railing inscription and Pitalkhora inscription nos. 6 and 7. However, in the Nanaghat inscriptions of queen Naganika both the varieties of 'ga' occurred. The medial sign for 'ā' is a short horizontal stroke to the right side of the angular top of the letter 'ga' - \( \overline{\Lambda} \). The medial sign for 'i' is a cursive upward stroke over the top of the letter - \( \overline{\Lambda} \).

The letter 'gha' occurs in Ajanta nos. 1 and 2 and Pitalkhora no. 2. In case of Ajanta no. 1 the writing
style of 'gha' continued the traditional Mauryan style of
writing. It is represented thus - ☕. But in Ajanta
no. 2 and Pitalkhora no. 2 the length of the vertical is
reduced. In Pitalkhora no. 2 the letter 'gha' is squarish
in shape - ☕.  

Palatals.

The letter 'cha' appears only in the inscriptions of
queen Naganika. It is represented by a small semi-circle
to the left of a straight vertical - ☕. The length of
the vertical line is short in comparison to the vertical
length of Asokan 'ch'a':


Nanaghat Asokan
CHA- D CHA- D

The letter 'chha' occurs in Pitalkhora nos. 5 and 7 and
Nanaghat inscriptions of queen Nāganikā. Two varieties of
'chha' can be noticed in these two groups (II and III) of
inscriptions selected for palaeographical analysis. The
first variety of 'chha' is represented thus - ☕. It
occurs in the Nanaghat inscriptions of Nāganikā. The
second variety of 'chha' resembles a horizontally placed
numeral figure 8 - ☕. A vertical line is appended above
the angular curve of the horizontal figure of 8 - ☕.

The letter 'ja' of these two groups (I and II) can be
categorized into two types. The first type resembles
Mauryan 'ja' which is represented by placing two semi-circles, one semi-circle above the other - ζ. The second variety resembles straight backed Roman alphabet - E. The first type of 'ja' occurs in the inscription nos. 4, 5, and 7 of Pitalkhora. The second type of 'ja' occurs in inscription no. 1 of Nasik. The letter 'ja' of Ajanta inscription no. 2 is very peculiar in shape and it is represented thus - ʃ.

The letter 'ṇa' occurs in the inscriptions of queen Naganika. It (na) resembles Mauryan Asokan 'na' - h. The medial sign for 'o' is a slanting straight line bisecting the vertical line above the left hook - ṭ.

Retroflexes:

The letter 'ṭa' occurs in Nanaghat inscriptions of Naganika and Ajanta no. 1. Letter 'ta' is represented by a semi-circle opening to the right side - ( ). The letter 'tha' is represented by a circle - O. It occurs in Nanaghat inscriptions, Pitalkhora inscription nos. 1 and 2 and Ajanta nos. 1 and 2. The medial sign for 'ṣ' is a cursive line drawn from the right side of circle. Letter 'ṭa' appears in Bhaja inscription no. 1. It is represented by a horizontal bar with two short verticals at its either ends, ' J', the left vertical is pointing downwards and the right vertical is pointing upwards. The left side angle is
slightly rounded.

The letter 'ṇa' is represented by a vertical line with two horizontal bars, one on the top of the vertical and the other one at the bottom end of the vertical - I.

Dentals:

The letter 'ṭa' appears in Pitalkhora inscription nos. 1, 2, 3, 5, 6 and 7, Ajanta no. 1, Nasik no. 1, Kondane Nanaghat inscriptions and Ajanta no. 2. The letter 'ṭa', of these two groups (II and III) are two types; 1) angular 'ṭa' and 2) slightly rounded 'ṭa'. The first type of 'ṭa' is similar in style to the letter 'ṭa' of Asokan. It is represented as a short vertical line with two forks at the foot - \( \backslash \). In the second type of 'ṭa' the angle of the two forks are rounded - \( \backslash \). The first type occurs in Pitalkhora nos. 1, 2 and 7, Nasik no. 1, Ajanta no. 1, Kondane and Nanaghat inscriptions. In Nanaghat inscriptions both the types of 'ṭa' are occurred. The second variety of 'ṭa' appears in Pitalkhora nos. 5 and 6. The medial sign for 'ṅ' is a short horizontal bar to the right side of the vertical forming a right angle - \( \backslash \). The medial sign for 'i' is a cursive stroke drawn upwards from the top of the vertical - \( \backslash \). The medial sign 'ā' which is angular in the Asokan edicts become rounded in the inscriptions of the
above two groups (II and III). The medial sign for 'o'
is a horizontal bar over the top of the vertical of 'ta'
- \( \text{\textbullet} \). The letter 'tha' is represented by a circle with
a dot in the centre of the circle - \( \text{\textbullet} \).

The letter 'da' appears in most of the inscriptions of
these two groups (II and III). Most of them have retained
the traditional Mauryan style of 'da'. The letter 'da' is
represented by a semi-circle opening to the left with its
ends elongated vertically to the top and bottom - \( \text{\textbullet} \).
In Ajanta inscription no. 1, Pitalkhora no. 1 and Bhaja no. 1,
the two verticals are not in the same line. The medial
sign for 'ā' is a short horizontal bar to the right side of
the upper vertical - \( \text{\textbullet} \). The medial sign for 'i' is an
additional short vertical stroke to the right end point of
the medial sign 'ā' - \( \text{\textbullet} \). Such type of angular medial
'i' occurs in Ajanta inscription no. 1. The medial sign
for 'e' is a short horizontal bar on the top left of the
upper vertical - \( \text{\textbullet} \). It occurs in Pitalkhora inscription
no. 1 and Nanaghath inscriptions of Nāgānaka.

The letter 'dha' resembles a reverse Roman alphabet
\( \text{D} \rightarrow \text{Q} \). It occurs in Bhaja inscription no. 1, Bhaja
railing inscription, Pitalkhora no. 1, Ajanta no. 2, Nasik
no. 2 and Nanaghath inscriptions. The medial sign for 'i'
is a cursive upward stroke drawn from the diameter of the
semi-circle -ο . The medial sign for long 'ʊ' is two parallel downward vertical lines at the base of the letter 'dha' - q . It occurs in the Nanaghat inscriptions of queen Nāganikā.

The letter 'na' occurs in most of the inscriptions of these two groups (II and III). Different styles of 'na' are occurred. The vertical line which stands perpendicularly the centre of the horizontal bar is in different angles. It may be classified into two types: The first type of 'na' is a perpendicular line over the middle of a horizontal bar. The vertical line of the second type of 'na' is slanting either to the left or right forming 60° angle. The first type is represented thus —⊥ . The second type is represented thus —┐ . The medial sign for a is a short horizontal bar on the right top of the vertical —┴ . The medial sign for 'o' is two horizontal strokes, one on in each side of the vertical —┴ .

Labials:

The letter 'pa' occurs in Pitalkhora no. 1, Bhaja no.1, Bhaja wooden railing inscription, Ajanta no. 1, Nanaghat inscriptions, Pitalkhora nos. 2,5 and 7. Except the letter 'pa' of Bhaja wooden railing inscription, all the others, 'pa' of the above inscriptions have reduced vertical length. The letter 'pa' resembles a fish-hook —┐ . The medial
sign for 'u' is drawn in two styles; 1) the medial sign 'u' is represented by a vertical downward stroke at the middle of the rounded bottom; 2) the stroke of second type of medial 'u' to the right side of the letter pa.

The first type of 'pu' is represented thus — \( \gamma \) and the second type of 'pu' is represented thus — \( \gamma \). The first style occurs in Ajanta no. 1 and the second style occurs in Pitalkhora nos. 5 and 7.

The letter 'ba' resembles a square box — \( \Box \). The letter 'bha' appears in Bhaja no. 1, Bhaja wooden railing inscription, Nanaghat inscriptions, Nasik no. 2 and Pitalkhora no. 2. In Aśokan edicts the letter 'bha' is written by joining the tops of two short vertical lines, by a horizontal one protruding to the right, from which another vertical stroke upwards — \( \eta \). But the letter 'bha' of these two groups of inscriptions, the upward and downward strokes is represented by a single line — \( \eta \).

The medial sign for 'ā' is a short horizontal stroke on the right top of the vertical — \( \sqrt{\alpha} \). It occurs in Nanaghat inscriptions of queen Nāganikā. The medial sign for 'o' is a horizontal bar over the top of the vertical — \( \sqrt{\beta} \). It occurs in Bhaja inscription no. 1.

The letter 'ma' appears in most of the inscriptions of these two groups (II and III). Here in these groups, the style of 'ma' can be categorized into two varieties.
Firstly, the style of traditional Mauryan 'ma', which is represented by placing a semi-circle upon a circle - ॐ. Secondly, flat base 'ma' - ḍ. The first style of 'ma' occurs in Ajanta no. 1, Nasik no. 1, Nanaghat inscriptions and Nasik no. 2. In Nasik no. 1 and Nanaghat inscriptions both the varieties are occurred. The second style of 'ma' appears in Nasik no. 1, Nanaghat inscriptions and Ajanta no. 2. The medial sign for 'ā' is a short horizontal bar on the top right of the semi-circle - ḍ. The medial sign for 'u' is a short vertical stroke to the bottom of the circle of ma - ॐ.

**Semi-vowels and ra, la**

The letter 'ya' of these two groups of inscriptions selected for study may be classified into two types:

1) double-curved 'ya' and 2) crescentic 'ya'. The double-curved 'ya' is written thus - ॐ and the crescentic 'ya' is written thus - ḍ. The first type of 'ya' occurs in Bhaja inscription no. 1 and the second variety appears in Ajanta no. 2, Pitalkhora 3 and Nanaghat inscriptions.

The letter 'ra' resembles a vertical line - ।. The medial sign for 'ā' is a horizontal short stroke on the top right of the vertical line - ḍ. The medial sign for 'i' is a cursive stroke over the top of the vertical - ḍ.
The letter 'la' is represented thus - U. The right arm or the right vertical is reduced. In comparison to the vertical length of Mauryan 'la' the letter 'la' of these two groups have shorter vertical length. In case of Nasik inscription no. 1, the vertical length is slightly bent to the left - △.

The letter 'va' occurs in most of the inscriptions of these two groups (II and III). The style of 'va' of these two groups can be classified into two types.
1) The first type is represented by a vertical line over a circle - ○. 2) The second type is triangular in shape with a short vertical on the apex of the triangle - △ □. The first variety appears in Ajanta no. 1 and 2, Nasik no. 1, Pitalkhora nos. 5 and 7. In Nanaghat inscriptions both the varieties occurred. The second type of 'va' occurs in Pitalkhora no. 1, Bhaja no. 1, Kondane inscription.

Fricatives:

The letter 'sa' appears in all the inscriptions of these two groups selected for study. Most of them have shown the tendency of reducing the vertical length. The letter 'sa' resembles a fish hook U with another hook to the left side - ▽. In Nasik inscription no. 1 the left hook is alternately twisted - ♫. In Nanaghat inscriptions there is the tendency of reducing the vertical length. However, in Bhaja inscription no. 1,
Kondane, Ajanta no. 1 and Nasik no. 2. the style of 'sa' resembles the style of Mauryan 'sa'.

The letter 'ha' of these two groups of inscriptions can be categorized into two types; 1) rounded base 'ha' and 2) angular base 'ha'. The first type of 'ha' appears in Ajanta no. 1 and the second type occurs in Nasik no. 1 and Nanaghat inscriptions of Nāganikā.

Remarks of Group II and III Analysis:

The palaeographical analysis of the above two groups of inscriptions clearly shows the developments in the characters of Western Indian Brāhmi records of first century B.C. From the above analysis it can be observed that, most of the letters continued the writing style of old Mauryan traditional style. Letters like, a, u, ka, tha, da, na, na and ma retained the old traditional Mauryan style of writing. In the case of letter 'ma' some are written in developed style.

The following developments can be observed in the characters of the Western Indian cave inscriptions of first century B.C.

1) The vertical lengths of the letters like pa, ya, sa, va and ha are reduced.

2) The bases of the letters ma and ya are flat and triangular in shape which are rounded in the traditional Mauryan style of writing.
3) The letter 'ra' is represented by a vertical line which is represented in the Mauryan inscriptions by an undulating vertical line.

4) Angular letters like 'a' and 'da' become rounded which are angular in the older traditional style of writing.

The differences between the letter-style of western Indian cave inscriptions and the letter-style of the Mauryan Brāhmaṇ are shown in the charts given below.

<table>
<thead>
<tr>
<th>Asokan standard style (3rd century B.C.)</th>
<th>Letter style of Western Indian cave Insca. (1st century B.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-</td>
<td></td>
</tr>
<tr>
<td>da.</td>
<td></td>
</tr>
<tr>
<td>pa.</td>
<td></td>
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<tr>
<td>bha.</td>
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</tr>
<tr>
<td>ma.</td>
<td></td>
</tr>
<tr>
<td>ya.</td>
<td></td>
</tr>
<tr>
<td>ra.</td>
<td></td>
</tr>
<tr>
<td>la.</td>
<td></td>
</tr>
<tr>
<td>va.</td>
<td></td>
</tr>
<tr>
<td>ha.</td>
<td></td>
</tr>
</tbody>
</table>

(5) The medial sign for 'ə' and 'i' which are generally angular in the Asokan inscriptions become rounded in the inscriptions of 1st century B.C.
Two reasons may be attributed to the reduction of vertical lengths: 1) imitation of the letter style of the coins; 2) reduction of vertical saves time and the letter looks more beautiful.

Practically in coins there is lesser space so there was little chance for elongating the vertical lengths. However, the question of limited space never arises in the case of stone, still the writer might have imitated the style of the reduced vertical lengths of the coins. Verma (1971:43-46) states that, the second century B.C. was a period which took a revolutionary step in the history of numismatics by inscribing Brāhmī legends. Verma (1971:57) further states that coins had served a pioneering work in the scriptal style of first century B.C. Perhaps the letter styles of the coins might have considered as standard script, as they were issued under the royal authority. It is therefore, quite possible to imitate the letter styles of the Brāhmī script depicted in the coins.

In the Nanaghat inscription of queen Nāganikā (Insc. no.1) the use of long initial 'ū' is noticed, which was unknown during the time of Asoka (Upasak 1960:46). The above detailed palaeographical analysis of the two groups of inscriptions of first century B.C. clearly shows the corresponding forms of the previous letters and also indicates the line of future developments.
Palaeographical Analysis of Group IV Inscriptions.

In palaeographical sequence, the inscription nos. 1, 2 and 3 of Bedsa, the inscription no. 4 of Nasik, the inscription nos. 1-11 of Karla and inscription no. 7 of Junnar may be categorized in one group. Here, in this group the characters of the letters show an advanced style of writing. The letters which are angular in group II and III inscriptions become rounded their angles. The circular bases of 'ma' and 'va' become triangular. The bases of the letters pa, la and ha which are rounded in the inscriptions of group II and III, are flat in this group (IV) of inscriptions. The verticals of the letters 'a' and 'ka' are elongated downwards in the inscriptions of this group IV. Most of the letters of this group are deviated in styles from the traditional Mauryan letter styles.

Vowels:

Five different vowels appear in this group of inscriptions selected for palaeographical study. They are a, ā, i, u and ū.

The initial 'a' occurs in Nasik no. 4 and Karla no. 2. The two left arms of 'a' are rounded and cursive. In Nasik no. 4 the vertical of 'a' is slightly bent to the left. It is represented thus - ऑ. In Karla no. 2 the two left arms of 'a' are meeting in a single horizontal line and then
the horizontal line meets the vertical line - ധ . The vertical is elongated downwards. The long initial 'ā' appears in Bedsa nos. 1 and 2. It is represented by projecting a short horizontal bar from the right of the vertical of 'a' - Firstname

The initial 'i' is represented by placing three dots in a triangular position. The two dots are placed one above the other and the third is placed to the right almost in the middle at an equal distance from them - The initial 'u' resembles Roman alphabet łuż . It occurs in Karla no. 3.

The long initial 'ū' is represented by adding a short horizontal bar to the right side of the vertical line of 'u'. It is represented thus - łuż . This form of long 'ū' is not to be found in the inscriptions of Asoka (Upasak 1960:40).

The long initial 'ū' occurs in the inscription no. 1 of Karla.

Consonants:

Velars:

The letter 'ka' appears in Bedsa inscription nos. 1, 2 and 3, Nasik no. 4 and Karla nos. 2-11. The letter 'ka' of this group is different in style from the letter 'ka' of the two previous groups (II and III) of inscriptions.
Here, in the inscriptions of group IV the vertical of letter 'ka' is elongated downwards. It is represented thus - †. There is the tendency of thickening the head of the vertical line of the letter 'ka'. The medial signs 'ā' and 'ē' continued the styles of the old traditional Mauryan writings. The medial sign for 'ā' is a short horizontal stroke projecting from the right top of the vertical - †. The medial sign for 'ē' is a short horizontal bar to the left side of the top vertical - †.

The letter 'ga' occurs in Bedsa no. 2, Nasik no. 4, Karla nos. 2, 4 and 5 and Junnar no. 7. The letter ga of this group of inscriptions resembles an inverted Roman alphabet U —∩. The traditional Mauryan angular form of 'ga' does not occur in the inscriptions of this group. The medial sign for 'o' is a short horizontal bar over the rounded top of 'ga'. The medial sign for 'i' is a slightly cursive stroke to the right top of 'ga' - ।;

The letter 'gha' appears in Nasik no. 4, Karla nos. 1, 4 and 6. In Nasik no. 4 there is the tendency of equalizing the verticals. The letter 'gha' of Nasik no. 4 resembles Roman alphabet- U with a short vertical line in the middle- U. In Karla no. 1 the base of letter 'gha' is flat- ω. In Karla nos. 4 and 6 the base of 'gha' is double curved- ω.
**Palatals**

The letter 'cha' occurs in Nasik no. 4, Karla no. 3 and Junnar no. 7. The letter 'cha' of this group is represented thus - ʊ. The letter 'ja' appears in Karla no. 1. Two varieties of 'ja' appear in Karla no. 1. The first variety resembles straight backed Roman alphabet - E. The second variety resembles cursive backed Roman alphabet E — E.

**Retroflexes**

The letter 'ṭa' of this group continued the old traditional style of writing. It is represented by a semi-circle opening to the right - ṭ. The medial sign for 'ā' is a short horizontal bar at the right middle of the semi-circle - ɻ. The letter 'ṭha' occurs in Bedsa nos. 1, 3, Nasik no. 4 and Karla no. 1. It is represented by a simple circle - O. The medial sign for 'o' is a short horizontal stroke to the left side of the circle; the medial sign for 'i' is a cursive upward stroke to the right side of the circle - ɻ. It occurs in Bedsa no. 3 and Karla no. 1.

The letter 'ḍa' appears in Bedsa nos. 1 and 3, Nasik no. 4. Here the letter 'ḍa' resembles retroflex 'ṭa' with a short slanting line on the upper right end point of the semi-circle - ɻ. The medial sign for 'i' is a left
opening semi-circle over the top of the slanting line of 'ḍa' - ृ . It appears in Bedsa no. 3.

The letter 'ṇa' retains the traditional Mauryan style which is formed by a vertical line with two horizontal strokes, one at the top and other at the bottom of the vertical - I. The letter 'ṇa' appears in Bedsa no. 2, Nasik no. 4, Karla nos. 1, 2, 5, 6 and 7. The medial sign for 'u' is a short downward vertical stroke to the right end point of the bottom horizontal bar - ु . Such type of 'nu' occurs in Karla nos. 4, 6, 7 and 10.

Dentals :

The letter 'ṭa' occurs in most of the inscriptions of this group of inscriptions selected for study. It occurs in Bedsa inscription nos. 1-3; Nasik no. 4; Karla nos. 1, 2, 4, 5, 6, 8, 9 and 11. As the letter 'ṭa' occurs frequently in this group, variant styles of 'ṭa' are also appeared. The styles of 'ṭa' may be classified into three varieties : 1) angular ṭa, which is represented by a short vertical line with two forks at its foot - ṭ ; 2) the second variety resembles Roman alphabet— h and 3) the third variety resembles an inverted Roman alphabet—ο with a vertical stroke over the middle of the rounded top - ṭ . The first variety occurs in Karla nos. 9 and 11. The second variety occurs in Bedsa no. 3, Karla nos. 1, 2 and 3. The third variety appears in Nasik no. 4,
Junnar no. 7, Bedsa nos. 1 and 2. The medial sign for 'ā' is a horizontal stroke to the right side of the vertical stroke - ḍḥ; ḍḥ. The medial sign for 'e' is a short horizontal bar to the left side of the vertical stroke - ḍḥ. The medial sign for 'u' is a short horizontal stroke to the right foot of the inverted U-shaped curve - ḍḥ. The medial sign for 'o' is a horizontal bar over the top of the vertical stroke - ḍḥ. The medial sign for 'i' is a semi-circular curve over the top of the vertical - ḍḥ.

The letter 'tha' is represented by a circle with a dot in the centre - ḍḥ. It occurs in Bedsa no. 2, Karla nos. 2, 3, 7, 9 and 11.

The letter 'da' appears in most of the inscriptions of group - IV. It occurs in Bedsa nos. 1 and 3, Nasik no. 4 Karla nos. 1-9 and 11, Junnar no. 7. The letter 'da' is written in three styles. 1) The first style of 'da' resembles the Mauryan 'da'; 2) The second style of 'da' is angular in the middle and 3) the third style downward vertical line of 'da' is bent to the left. The first style of 'da' is represented by a left opening semi-circle with its ends elongated to the top and bottom - ḍḥ. In the second style of 'da' the semi-circular curve becomes an angular curve - ḍḥ. The third type of 'da' is curved at
the bottom. The first style of 'da' occurs in Bedsa inscription nos. 2 and 3, Karla nos. 5, 7, 9 and 11. The second type of 'da' occurs in Karla nos. 2, 3 and 4. The third style occurs in Junnar no. 7. The medial sign for 'ā' is a short horizontal stroke to the left of the vertical - ʃ . In Junnar no. 7 the angular stroke of medial 'ā' is rounded- ₌ . The letter 'dha' resembles a reverse Roman alphabet D — Q and is written in two strokes. First a vertical straight line is drawn and then a semi-circle that joins the lower and the upper ends with its curve to the left.

The letter 'na' occurs in most of the inscriptions of group IV. The letter 'na' is written in two styles.  
1) The first style is a vertical line standing perpendicularly over the middle of a horizontal bar  
2) In the second style of 'na' the vertical perpendicular line is slanting either to the left or right. In some cases, the vertical line is inclined at an angle of 45 degrees. This type of slanting vertical 'na' occurs in Nasik no. 4 and Karla no. 10.

Labials:

The letter 'pa' occurs in most of the inscriptions of group IV. The letter 'pa' is written in two styles;  
1) rounded base 'pa' and 2) flat base 'pa'. The rounded
base 'pa' resembles Roman alphabet - U. It occurs in Nasik no. 4 and Karla no. 8. The flat base 'pa' resembles a rectangular box opened on the top - U. Such type of flat or straight base 'pa' occurs in Bedsa nos. 1-3, Karla nos. 1, 2, 3, 6 and 11. The medial sign for 'u' is a vertical downward elongated line from the right vertical - U.

The letter 'ba' resembles a square box - O. It occurs in Bedsa no. 2 and Karla no. 1. The letter 'bha' occurs in most of the inscriptions of group- IV. The letter 'bha' is written in two ways. The first type of 'bha' resembles reverse Roman alphabet - h----- A. The second type of 'bha' is represented thus - A. The medial sign for 'ā' is a short horizontal stroke to the right of the vertical line - A. The medial sign for 'u' is a short dash at the right foot of the vertical A.

The letter 'ma' appears in Bedsa nos. 2 and 3, Nasik no. 4, Karla nos. 1-6, 8-11 and Junnar no. 7. The letter 'ma' of these inscriptions is written in three styles. The first style of 'ma' has a rounded base - A. The second style has a conical bulb shaped base - A and the third style has a triangular base - A. The first type of 'ma' occurs in Bedsa no. 2 and Karla nos. 3 and 8. The second variety occurs in Karla nos. 1 and 6. The third style of 'ma' appears in Bedsa no. 3, Nasik no. 4, Karla nos. 4, 9, 10, 11 and Junnar no. 7. The medial sign for 'ā' is a horizontal short stroke to the right top of the U - curve - A.
In some cases the medial sign 'ः' is at the middle angular right curve of 'मा' - अः. The medial sign for 'ि' is a cursive upward stroke drawn continuously from the right top - ॐ. The medial sign for 'ु' is a downward stroke at the base of 'मा' - अः.

Semi-vowels and ra la

The letter 'या' of this group of inscriptions may be categorized into two types; 1) crescentic 'या' and double-curved 'या'. The first type of 'या' is a semi-circular or crescentic curve with a vertical line on the arc - ॐ. The second type of 'या' is double-curved at the base. It is represented thus - ॐ. The first type of 'या' occurs in Bedsa nos. 2 and 3, Nasik no. 4, Karla nos. 1, 3, 5, 8, 9 and 10. The second type of 'या' occurs in Karla no. 7.

The letter 'रा' is represented by a simple vertical line - ।. In some cases, the vertical line has an angular curve at the middle - ।, and tapers from top to bottom. Such type of angular 'रा' occurs in Karla nos. 1, 2 and 3. The letter 'ला' of this group of inscriptions selected for study may be categorized into two styles. Firstly, flat base 'ला' and secondly rounded base 'ला'. The flat base 'ला' is written thus - ल and the rounded base 'ला' is written thus - ल।. The first style of 'ला' occurs in Bedsa no. 2, Karla nos. 1, 5 and 8. The second
style of 'la' appears in Nasik no. 4.

The letter 'va' occurs in Bedsa nos. 2 and 3, Nasik no. 4, Karla nos. 1, 3, 5-8, 10-11 and Junnar no. 7. The letter 'va' is triangular in shape with a short vertical stroke on its apex - Δ. The medial sign for 'ā' is a horizontal short stroke to the right of the vertical - ॐ. The medial sign for 'e' is a short horizontal stroke to the left of the vertical - Λ. The medial sign for 'i' is a semi-circular curve over the top of the short vertical stroke - ॐ.

The letter 'sa' occurs in all the inscriptions of group IV. letter 'sa' resembles Roman alphabet - U with a downward pointing hook to the left - Ψ. In Nasik inscription no. 4, the left hook is cursive and alternately twisted - Ψ.

The letter 'ha' occurs in Bedsa no. 3, Nasik no. 4 Karla nos. 2-5 and 7. The letter 'ha' of this group of inscriptions is written in three different styles. The first style of 'ha' has an angular base - Ψ. The second style of 'ha' has a rounded base - Ψ, and the third style of 'ha' is squarish in shape with flat base - Ψ.

Clusters (compound Aksharas)

Only three clusters occur in the inscriptions of group
IV. In Karla inscription nos. 1 and 2, the two clusters 'mhi' and 'tra' are occurred. In Nasik no. 4 the cluster 'nhu' is occurred. They are written as follows

1) Karla - 1
   mhi

2) Karla - 2
   tra

3) Nasik no. 4
   nh

Remarks of Group IV Analysis:

The palaeographical analysis of group IV inscriptions shows an advanced style of writing in comparison to the writing style of group II and III inscriptions. The line of later developments of the characters can be seen more clearly in group IV than the characters of group II and III. The tendency of equalizing the verticals of the letters gha, pa and ya was very common in the inscriptions of later periods. Angular letters like a, ta, ga became rounded. In some inscriptions the base of 'ma' retained the old traditional style. However, majority of the letter has triangular base. The bases of 'la' and 'ha' are also flat which became a common feature in the inscriptions of second
and third century A. D. Here in the inscriptions of group IV the amalgamation of both the older traditional styles and developed styles can be observed. The letter style of group IV inscriptions may be considered as the characters of transition period. Hence, the period between the end of first century B. C. and beginning of first century A. D. can be considered a period of transition in the history of writing in western India.