International journal of interdisciplinary and multidisciplinary research

ISSN 2456–4567 (O)

History of punch-marked coin in Indian subcontinent

Mr.Dipayan Das
Researcher
Department of history
University of Bardhaman
West Bengal
India

Abstract

Most likely the fist coin of India was minted just before 5th century BCE in northern and central India. The earliest coins of India are commonly known as Punch-marked coins. As the name suggests, these coins bear the symbol of various types, punched on metal pieces of specific size and weight. Issued initially by merchant Guilds and later by States, the coins represented a trade currency belonging to a period of intensive trade activity and urban development. They are broadly classified into two periods: the first period (attributed to the Janapadas or small local states) and the second period (attributed to the Imperial Mauryan period). The motifs found on these coins were mostly drawn from nature like the sun, various animal motifs, trees, hills etc. and some were geometrical symbols. In this write up we shall discuss the origin, growth and development of Punch marked coins in Indian Subcontinent in ancient times.

Earliest coins of India are popularly known as the punch marked coins. These coins are mostly made of silver, were current in the present day India, Sri Lanka, Pakistan, Afghanistan and other adjoining countries. The coins were issued from sixth to first century BC, and were in circulation till fifth century AD. The references of coin are found from ancient Indian literature as well as inscription from pre-Christian era. The Arthasastra of Kautilya contains references to silver coins (called pana, ardha-pana, pada and ashtabhaga) and copper coins (known as masaka, ardha-masaka, kakini and ardha-kakini). The Jatakas give the descriptions of Kahapanas which were used very extensively in the daily life of early Indian people. Kahapanas are its subdivisions are also mentioned in early Pali texts like Vinaya-pitaka, Anguttara-nikaya and Majjhima-nikaya. In the Arhiya section of Ashtadhayayi (ca. 5th to

4thcentury BCE) Panini refers Karshapana or pana (32 ratis) and its various subdivisions like ardha-karshapana, pada-karshapana, dvimasa (1/8 Karshapana) and masa (1/16 Karshapana). Panini also mentioned other denominations of coin viz. vimastika (40 ratis), trimastika (60 rattis), satamana (100 rattis) and sana (12.5 rattis). The earliest inscriptional reference to karshapana is found in Nasik Cave inscription (ca. 119-124 BCE) of Dakhamitra, wife of Ushavadata.[1] Three thousand Karshapanas were donated to the Buddhist monks for their different items of expenditure through this inscription.[2] Among these various denominations of coin, thirty-two rattis weighed Karshapana was abundantly found in various regions of Indian Sub-continent. Karshapana and its various denominations are commonly known as 'Punch-Marked Coin' because these coins were manufactured by punching technique.

Before the rise of Magadhan Empire in 6th century BCE the entire Indian sub-continent was divided into several Janapadas (small states) and Maha-Janapadas due to the absence of any imperial supremacy. A good number of Janapadas are narrated in ancient literature; like Vedic literature (17Janapada), Ashtadhayi (38 Janapadas), Ramayana (24 Janapadas), Jataka (14 Janapadas), The Mahabharata (88 Janapadas) and Bhuvanakosa Chapters of Puranas (175 Janapadas).[3] Among these Janapadas, sixteen became prominent during the time of Buddha and according to Anguttara- nikaya they were known as 'SodasaMahajanapadas'. We know from the research work of P.L.Gupta the seventeen Janapadas (Sursena, Uttar Panchala, Dakshin Panchala, Vatsa, Kunala, Kosala, Kasi, Malla, Magadha, Vanga, Kalinga, Andhra, Asmaka, Mulaka, Avanti, Surashtra and Gandhara issued punch-marked coins. [4]

The coins Sursena, Uttar Panchala, Dakshin Panchala, Vatsa, Kunala, Ashmaka and Surashtra bear only symbol, whereas the other Janapadas issued coins with four symbols. Gandhara issued one hundred ratti bent-bar wheel-marked coins. The coins of Surashtra are thin and small and weighted fifteen grains only. The coins of Vatsa. Kosala, Kasi, Magadha, Kalinga and Andhra Janapadas are thin in fabric and the ones of Malla and Mulaka are thick. [5] In fact the coins of various Janapadas differed from one other in their execution fabric, weight, quality of metal and symbology. These punched marked coins are called Janapada punch-marked coins.

Among the Janapadas, Magadha was very powerful and showed the tendency towards centralization. Most of these Janapadas were subsequently absorbed into Magadhan Empire during the period of Bimbisara (ca. 543-491BCE), Ajatasatru (ca. 491-459 BCE) and their successors of the Brihadratha dynasty.[7] The next dynasty of Magadha i.e. the Sisunaga dynasty (ca. 430-364BCE) shifted the capital from Rajgir to Patuliputra (modern Patana) are minted a new series of coinage. [8] The Janapada punch-marked coins gradually disappeared by the end of the 4th century BCE when Magadhan Empire expanded. The new series of coins were different in number of symbols and weight from the Janapada coins.

The Post-Jnapada punch-marked coins bear five symbols on the obverse and weight thirty tworattis standard and popularly known as Karshapana or Imperial punch-marked coin. The new coinage was to be the model for the later coinage of Magadhan Empire and its successors under the Nanda (ca. 364-324 BCE) and Maurya (ca 324-187 BCE) dynasties. The Nanda and Maurya dynasties ruled Indian sub-continent for about four hundred years and their currency Karshapanas were circulated in various parts of the country.

General feature of the punch marked coin symbol

Writing on coins was not a common practice when punch-marked coins were issued. Except a few examples of inscribed punch-marked coins found in central India, [9] punch- marked coins do not contain any inscription or legend. But they usually contain some curious symbols. The positioning of symbols is more or less at random through

they tend to fall partly of the edge of the flan and on larger coins there are attempts to avoid overlapping. But most of the times symbols overlapped with each other. On the other hand, on some coins the symbol has weathered during their long currency. Therefore, the symbols are different to identify properly. In spite of these difficulties scholars are identified 625 individual symbols and 1245 symbol groupings on punch-marked coins of Early Historic India.

The obverse of common 32 rattis punch-marked coins bear five symbols and the Janapada coins bear one to four symbols. On the other hand, the reverse does not provide any diagnostic feature. The number of reverse symbols is not certain; it may be zero to sixteen.[10] Generally, the reverse marks are minute in size but sometimes the reverse contains bold symbols. Symbols on the obverse are rarely found on the reverse. In this situation a conscious differentiation is noticeable on the reverse where symbols are slightly smaller and thinner than those on the reverse. [11] The common symbols found on Indian punch-marked coins are sun, six-armed symbols (often called Sadaracakra), arched-gateway, arched-hill, arched-hill with crescent/dog/bull/peacock/tree on the top, elephant, bull, dog, deer, hare, camel, goat, peacock, frog, tortoise, fish, rhinoceros, snake, scorpion, tree-in-railing, bow-and –arrow, (with or without taurine), steelyard, water-wheel, arrow-tipped standard, elephant, goad, three standing human figure, taurine, caduceus, triangle- headed standard, lotus-bud, four-fingered hand print in a square, srivasta, zigzag line, star etc.

Weight

According to ancient literature Manu, the weights of ancient gold, silver, and copper coins are 80 raktikas, 32 raktikas respectively.[12] The raktikas the modern ratti, is the seed of the gunja, also known as krishnal. The same measuring method is in used even today by the goldsmiths and jewelers for weighing silver and gold.

Gold punched-marked coins are mentioned abundantly in ancient Indian literature (Ashtadhyayi, Jataka and Mahabhashya). But the presence of punched-marked coin in ancient India is not certain due to the lack of archeological evidences. [13] Therefore, the weight standard of gold punched-marked coins can not be justified. Silver punch- marked coins are found profusely in various denominations all the over sub- continent. Among the silver punched-marked coins 32 rattis weight standard coins are popularly called karshapana. A few silver punched marked coins conform to this theoretical weight as defined in Manu.[14] All most regularly the weight of punched marked coin is found lighter than the 32 rattis standard weight. Several possible factors may be responsible for this uneven weight.

Firstly, the used of punch-marked coins for a longer period might make them a bit lighter. D.D.Kosambi[15] suggested that one grain is lost from a silver coin in twelve years of it circulation. Kosambi's explanation is arbitrary, which had been criticized by Romila Thapar [16] that 'the average time taken in the wear and tear of a coin cannot be assessed in this way. The practice of hoarding makes it difficult to make a guess about the rate of wear and tear'. Secondly, the weight of coins might vary due to changes in the relative market value of the metal. [17] Thirdly, dishonest people tried to chip off bits of metal from the coin pieces. Lastly, measuring with the help of the seed krishnala which often vary in size and weight can never be exact. The weight of krishnala varies between 2.25 to 1.7 grains. So the weight of punch-marked coins was determined by several scholars in different ways. According to A. Cunningham [18] and Prasad, krishnala weighted 1.8 grains in average and according to D.C.Sircar and D.R.Bhandarkar[19] it was 1.83 grains. In view of these circumstances it is extremely difficult to ascertain the exact weight of punch-marked coins. That is why; researchers fixed the weight of punched-marked coins in

different standard i.e. 57.6 grains/3.732 gm, [20] 58.56 grains/3.794 gm [21] and 51-54 grains/3.3-3.5 gm [22] for one karshapana.

The silver karshapans had several denominations. In fact, 32 rattis is the standard and most popular denomination, although both higher and lower denominations are reported. These denominations are double (64 rattis), adhyardha (one and a half karshapana; 48 rattis), three pada (three quarter karshapana; 24 rattis), ardha (half karshapana; 16 rattis) and pada (quarter karshapana; 8 rattis). [23] The tripada-karshapanas of 24 rattis were mainly in circulation in the Kosala and Kashi regions. The ardhakarshapanas of 16 rattis are found in a small numbers at Lotapur in Uttar Pradesh, [24] Agartala in Tripura [25] and Wari-Batashawar in Narsingdi district in Bangladesh. The Adhyardha Padika karshapanas of 12 rattis have been reported from Madurai in Tamil Nadu, Krishna in Andhra Pradesh and Sonapur in Orissa. Four distinct tiny punch-marked coin series are also known from the Avanti and Gandhara regions. [26] They are 1-8 karshapana (four rattis), a mashaka (2 rattis), Kakini (1/2 ratti) and ardhakakini (¼ ratti). A Series sata (hundred) rattis silver coins i.e. the wheel –marked or bent bar series is also known. No ancient silver coins confirming to this weight standard is found except the bilingual silver coins of the Indo-Greeks.[27]

Metal and its source

The metals used for making punched-marked coins in ancient India are mainly silver, copper and gold. The references to gold punch-marked coins in ancient literature are numerous. We came to know about a few gold punched-marked coins from J.Allan, [28] D. Upadhyaya and S.N.Chaturvedi, S.M Devi and A.L. Basham's writings. But the authenticity of these coins is not beyond doubt. Among these coins some are taken by most of the scholars to be modern forgeries. Actually, in manufacturing coins gold is used not before the kushana period in India. Copper punch-marked coins are much rare that the silver punch-marked coins. Quite a good number of copper punch-marked coins were noticed from various sites of Rajasthan (Nagari, Rairh, Ismail ki- Doongari, Nagar , Noh, Ahar and Pandusar) Maharashtra (Kaundinyapur), Bihar (Madhaipur), Madhya Pradesh (Ujjain and Vidisha) and West Bengal (Chandraketugarh and Deulpota, Mangalkot and Dihar). Copper ores are naturally found in various parts of Bihar, Rajasthan and other place of Indian subcontinent. The coin manufacturers of copper punch-marked coins might had used the local source of copper ores to manufacture the coins. [29]

Punch-marked coin primarily a silver currency and had been circulated all over ancient India. The raw materials of silver were not profusely available in India. A few amount of silver is locally produced in India from argentiferous galena, and ore of lead in which silver occurs as an impurity. Pliny referred to mining silver from Mons Capitali (Mount Abu of Aravalli Range, Rajasthan) and Setai (Kulu region, Himachal Predesh). [30] Another to important sources of galena in ancient India are Metri at Belary district of Uttar Pradesh and Zawar at Udaipur district in Rajasthan. A short amount of silver may also been collected from argentiferous galena found in Orissa and at Beheraki and Laksmipur of Santhal Parganas in Bihar. The only known source of silver in the early historic eastern India was Gaudika as Arthasastra referred. From the early historic period, Indian people might exploit these mines. Since it is conceivable that the above source of silver could meet the total demand for silver used in manufacturing punch-marked coins, one is led to believe that silver must have been imported. The most important sources of silver in the immediate vicinity of India are Hindukush and Heart in Afghanistan, Bawdwin in Myanmar and Yunnan in China. It is generally believed that the punch-marked coins could be plentifully produced only after India was in a position to get silver from Myanmar, China, Afghanistan and Even from Persia as a result of efficient international trade. [31]

Manufacturing

The process of coin manufacturing depends on factors like scale of production, availability of time, cost conservation and easy operation. In early historic India, various states followed minting techniques according to their suitability. These techniques consisted of two important processes, viz. preparing planchets and striking coins from the planchets. Both the techniques embody a dozen techniques for the fabrication of punch-marked coins of India.

I. Techniques of preparing planchets

Planchets coin-blanks were produced by various techniques. Important among them are:

- **Technique of droplet coins**

The technique was used widely for producing coins at a mass scale. Many scholars have discussed it but so far, the theories by them are not practicable.

The key people involved in the production of coins were jewelers. These people would naturally manufacture coins by the technique well-known to them. Interestingly enough, the droplet technique is such a technique which is used in India for about two thousand six hundred years by the jewelers. This technique can also be called as Bed of Charcoal Process.

In this process, silver pieces of required weight were placed in a crucible in the following manner: Buttom of the crucible was filled with a layer of charcoal. Over the bed of charcoal, silver pieces of required weight were placed at the equidistance. This bed of silver pieces was followed by yet another bed of charcoal, which in turn, was followed by the next layer of silver pieces. In this way, the crucible was filled to the top by the alternate layers of charcoal and silver pieces. The bed of charcoal between the two layers of silver pieces is required to keep separate the silver layers when the crucible is being heated-up and the equidistance between the two silver pieces, in the silver bed, is necessary to segregate the molten drops.

Thereafter the crucible was transferred into an earthen furnace. In the furnace, the crucible was fully covered with the dishes of cow dung and was left to the fire for slow heating. After a few hours, silver pieces, in the crucible, got melted down and assumed the shape of drops. Then the crucible was taken out of the furnace and the silver pieces were passed onto another person who used to beat them up, and, in turn, transferred them to yet another person whose job was to punch them with different punches.

- **Techniques of scyphate coins**

In this process, metal drops were prepared by the droplet technique. However, the metal drops fresh from furnace were beaten up with convex devices resulting in the saucer like shapes of the planchets. Later on, these blanks were placed on a wooden anvil and were punched subsequently.

- **Techniques for producing coins with laminated flans**

In this technique, coin blanks were cut into approximate weight from metal sheets. Subsequently, the pieces were weighed on scales. If the weight of a piece was found accurate, it was sent for stamping. If the weight of a piece was found more than the stipulated weight, corner of the pieces was cut to adjust the weight. However, the real problem arose when weights of silver pieces were less than the required weight. Only option available in this case was to remelt such pieces and prepare fresh sheets. Since this was a laborious process, a small piece of required weight has affixed to such coins. This adjusted the weight. In some cases, a minute blank punch was stamped on these pieces to guarantee the weight of those coins.

Techniques for producing coins with a planting of silver

A few Janapada coins are encountered which seem to be original issues of a royal mint. The only disparity observes among these coins is the metal. Here, instead of silver, these are of copper with a planting of silver. These copper coins appear to be official forgeries of the coins issued either purposely by the state or unofficially by mint authorities. In the process, planchets of baser metal were prepared either by droplet technique or by clipping from metal sheets. The planting of silver could have been carried out by one of the three different methods:

- ✓ The simplest method was to dip the planchets on a wash of molten silver, the coin being first cleaned in a bath of borax or potash to make the silver adhere.
- ✓ This method is dangerous as it involves use of mercury. Here the blank was put into an amalgam of silver dissolved in mercury and then heating it to evaporate the mercury.
- ✓ In the last process, planchets were prepared in base metal with a high silver content and were made to appear silvery by a process of blanching. By this process, the flan was heated over a charcoal fire in order to oxidize the copper on the surface leaving a silver-rich layer underneath. The oxide coat was removed by immersion in a saline solution. The flan was then removed by immersion in a salinsolution. The flan was then struck, and the process of striking helped to stabilize silver

- ➢ **E) Technique of cast planchets**

In this technique instead of preparing planchet by any other method listed above, the blanks were being cast in moulds. In the process, molten metal was poured into round depression of a definite depth in a big mould. By the technique ingots were flattened and were ready for stamping.It appears that some of the Gandhara coins known from the Chaman Hazuri hoard were produced by this technique. [32] Furthermore some con moulds of a much later date have been found at Bhambhor and Brahmanabad Mansura in Sind which attest to the hypothesis of casting of blanks.

- ➢ **F) Technique for metal sheets**

In this process metal was first melted in crucible and was then cast into moulds. These moulds were beaten up and sheets were made out of them. These sheets were cut into strips, from which were then cut planchets of appropriate weights. These planchets were weighed. If found accurate weight they were sent for stamping. If the weight was found in excess, corners were cut to adjust the weight, and if the weight was found to less than the stipulated one, such planchets were sent for re-melting.

Similar method has been narrated by Kautilya in his Arthasastra. [33] In the chapter dealing with the means of guarding against persons with secret means of subsistence, it is said that if a frequent purchaser of various metals and acids,

coals, bellows, pincers, hammer, anvils, dies bearing designs and crucible with indication of his hands and cloths smeared with soot, ashes and smoke and possessing blacksmith's tools is suspected to be counterfeiter of coins. [34]

From this account it can be suggested that during those days metal sheets and coins were produced in the following manner: the metal was first melted in crucibles and purified with alkalis then the metal was beaten into sheets on an anvil with a hammer and then cut into pieces with clippers and finally they were stamped with dies or punches having symbols.

II. Techniques of striking coins from planchets

Various techniques were employed to struck coins from planchets. Among them following are noteworthy:

- **Single- die technique**

Single technique was used by the Janapadas issuing coins with a single symbol. In the process, coin blanks of required weight were prepared either by droplet technique or by cutting from metal sheets. Subsequently, planchets were stamped with a die having a complete design of the intended symbol. In some cases, the die used to be smaller than the flans resulting in the full impression on the blanks. In some other cases, the dies were bigger than the flans, hence resulting in the partial impression.

- **Double- die technique**

This technique was influenced by the Greek coins. In the process, coin blank were prepared by casting method. Later on, planchets were placed upon the anvil die. On to the blanks, a punched did was placed and was hammered onto the top of the punch-die. The planchets got squeezed between the two dies and received impression of dies on the either side. Anvil dies, in case of Gandharian coins, were weakly engraved as compared with the punch-dies. The presence applied was also not sufficient. Hence resulting in the weak impression on the obverse. As compared to the die-struck technique, the punch dies of this technique were more like punches than a real die and covered the central portion of the flans.

- **Punch-marked technique**

This technique was employed by the states issuing coins with more than one symbol. In the present manufacturing process planchets of required weight were produced either by droplet technique or by cutting required pieces from metal sheets. Once the blank of required weight werereadythey were stamped with either one, two, three, four of five different punches. While punching the symbols no special care was taken of the chronology and many a times they were overlapped by each other resulting in a mixture of symbols. Sometimes a punch was stamped more than once, thus having an excess of such a symbol.

- **Shalaka (bent-bar) technique**

Shalaka or Bent bar coins were issued by the Gandhara Janapada. In this process, bars were first cut from oblong ingots. The width of the ingot determined the length of the coin, the thickness remained the same and the strip was therefore cut to a width which, combined with the other two dimensions, would give approximately the required weight. After being cut, the bar was adjusted more exactly to the correct weight by chiseling at the corners.

Subsequently, the blank bars were stamped with dies. The dies were impressed twice, once at each end of the bar. The faces of these dies were circular and convex, thus producing a concave incuse and accentring the curvature at the ends of the coins. The dies were subsequently wider then the bars on which they were impressed, so that the complete impression is hardily seen. However, the curvatures of the bars help in preserving the impression in circulation. [35]

- **Repousse technique**

Literary meaning of the word Repousse is 'shaped or ornamented with patterns in relief made by hammering or pressing on the reverse side'. The technique can also be identified as Utpiditanka mudra. The first half of the word, Utapidita, stands for 'well pressed' and the second half for 'devices legend' etc. the complete word denoted the coin having devices, legend etc., pressed well from one side. The other side bears a negative impression of the obverse side in intaglio.

- **Overstriking technique**

In these techniques, existing coins of the same Janapada or of a neighboring state were overstruck with new devices. This could have been done in two ways: i) Restriking and ii) Clipping

In the Restriking process, existing coins were recalled from markets by the mint authorities. These old issues were restruck with a punch or punches having new devices and were put back into circulation. A general pattern observed in this process is that normally the blank or the reverse sides of the old coins were used for striking new symbols.

In clipping process, existing coins of the same state or of a neighboring state were withdrawn from circulation. These coins were clipped into halves or quarters and were punched subsequently by the minting authorities with new symbols. It is observed that bigger denominations were cut into fractions by the traders without any royal symbols whereas bigger coins of other states were clipped by the mint authorities to serve them as their own issues.

Distribution and chronology

Silver punch-marked coins were found in almost the entire Indian sub-continent including Sri Lanka and Afghanistan. So far more than two hundred hoards and several hundred find spots of punch-marked coins are known from all over Indian sub-continent. Among the hoards, Chaman Hazuri (Kabul, Afghanistan), Bhir Mound (Taxila, Punjab, Pakistan) and Sahet-Mahet hoard 9Bahraich district, Uttar Predesh0 are significant for the earliest punch-marked coin series Satamana or the 'Bent bar'. Ramnagar (Jaunpur, Uttar Predesh) hoard is noticeable for cup-shaped punch-marked coins. Paila hoard is the most significant for having Janapada issues of Kosala Kingdom.

Gorakhpur (Patna district, Bihar), Narhan (Gorakhpur district, Uttar Pradesh, Amravati (Guntur district, Andhra Pradesh), Karimnagar (Karimnagar district, Andhra Pradesh), Gulbarga (Gulbarga district, Karnataka), Coimbatore (Coimbatore district, Tamil Nadu, Barwani (Barwani district, Madhya Pradesh), Tilora (Birbhum district, West Bengal) and Chandraketugarh (24 Parganas district, West Bengal) are the prominent hoards of imperial issues in India.

The punch-marked coin covers a long range of period and the limit of this period can hardly be determined certainly. The beginning of punch-marked coin has been speculated by several scholars in various dates ranging from 1000 BCE to 4th century BCE. A. Cunningham thought that the punch-marked coins evolved around 1000 BCE. According to J.Allan the punch-marked coins were circulated during the 3rd century and 2nd century BCE and might

go back to the 4th century BCE. P.L.Gupta and T.R.Harhaker suggested that the punch0marked coins struck from the 6th century BCE or earlier to the 2nd century BCE.

In excavations the punch-marked coins generally revealed from NBPW strata. The concentration of dates for NBPW is from ca. 500 BCE to 50 BCE. Considering the association with NBPW S.R.Goyal suggested that punch-marked coins cannot be pushed back much earlier than 500 BCE. The issue and production of punch-marked coins stopped in the 2nd century BCE due to the fall of the Mauryan dynasty. But the coin were still in use for the next four or five hundred years.

References

1. Dutta Debojit (2012): **The journal of Social Science Researcher**;history and antiquity of punch-marked coin in Indian subcontinent, Volume-I, No.I, pp.01-15.
2. Senart E.(Reprint 1981): **Epigraphia Indica** 'The Inscription in the Caves at Nasik', Volume viii, pp. 81, Calcutta, Govt. of India
3. Choudhury Radhakrishna (1961): **Indian Numismatic** Chronicle II, pp. 153-160, New Delhi.
4. Suryavanshi B.S., (1986): **Geography of the Mahabharata**, pp. 41-43, New Delhi, Ramanand Vidya Bhawan.
5. Chattopadhyay Sunil., (1983): **PrachinBarater Itihas**, Pratham Khanda, Calcutta, West Bengal State Book Board.
6. Gupta P.L. and T.R.Hardaker (1985): **Ancient Indian Silver Punch0marked Coins of the Magadha**- Maurya Karshapana Series, pp. 1, Nasik, Indian Institute of Research in Numismatic Studies.
7. Cunningham A., (1891): **Coins of Ancient India**, New Delhi, Indological Book House
   Pp.46-47
8. Sarkar H., (1969): **Journal of the Numismatic Society of India XXXII** 'The Weight Standard of Punch-marked Coins', pp. 01-14,
9. Thapar Romila (1961): **Asoka and the Decline of the Mauryas**, New Delhi, Oxford University Press, pp. 245.
10. Bhandarkar D.R., (1921): **Lectures on Ancient Indian Numismatics**, Patna, Eastern Book House, pp. 112
11. Lahiri A.N., (1985): **Historical Archeology of India: A Dialogue Between Archeologist and Historians**, pp. 209-215, New Delhi, Books &Books Publishers &and Distributors
12. Allan J. (1936): Catalogue of the Coins of Ancient India, New Delhi, Oriental Books Reprint Corporation, pp. 236.
13. Handa Devendra, (1985): **Studies in Indian Coins and Seals**, New Delhi, Sandeep Prakasan, pp. 26
14. Mukherjee and Lee, (1988): **Technology of Indian Coins**, Calcutta, Indian Museum

pp. 72-73.

15. Young G.M., (1946): **Ancient India** 'A New Hoard from Taxila' (Bhir Mound), Volume I, New Delhi, pp. 27-36.