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RESEARCH ARTICLE

BUDDHA, BIHAR AND BRONZE: A CURIOUS 'TRINITY' IN THE AXIAL AGE

Kamini Krishna
Dept. of History, The University of Zambia, School of Humanities and Social Sciences.

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Abstract

One of the most intertwined relationships in Indian history between a region, a religion and its reverence in form of art is explored in this article. Buddha, the founder of the famous religion of Buddhism gained enlightenment in Bihar, a state in India .Perhaps unsurprisingly, hordes of bronze statues were casted, after His life time in this part of India. The article attempts to highlight the different places where these bronze artefacts were found in Bihar. The article emphasises briefly on the salient feature of Buddha's birth place and His journey from a man of prominence to an enlightened being. It also focuses on the development of bronze art and casting techniques of different bronze devices that were produced by the artists of that era. It concludes by presenting the results of chemical analysis, which was done to prove the artists' own skills and experiences that was applied in order to achieve superior results for casting.

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Introduction:-

The art of any country mirrors the different aspects of the contemporary civilization. Art is also considered as a diverse range of human activities involving the creation of visual, auditory or performing artefacts, which express the creator's imagination, conceptual ideas, or technical skills. In the respective of the history of art, artistic works have existed for almost as long as humankind: from early pre-history to contemporary art. In simple words one can say that an art refers to a skill used to express the artist's creativity, or to engage the audience's aesthetic sensibilities, or to draw the audience towards consideration of more refined or finer work of art.

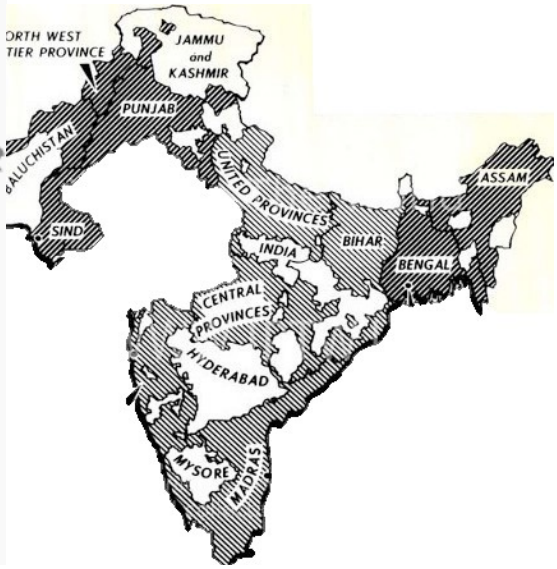
The artist genuine of the state of Bihar's artists cannot be ignored who expressed their views through various modes of representations of the art objects. Metal likewise stone was an important medium over which the artists fulfilled their artistic ambitions. Archaeological excavations coupled with chance finds from different parts of Bihar, for example, Nalanda, Sultanganj, Kurkihar, Chandipur, Fatehpur and Aluara and from various other places brought to light a sufficiently large number of metal images and other objects. In addition, iconographers also produced numerous objects which has undoubtedly religious significance. Whether, the statue or objects they all speak highly of the artistic excellence, as such it is desirable that the metal/ bronze output should be studied adequately for a proper appraisal and evolution. Some competent authors have done standard work on the art of India in general, and even a few on the art of Bihar but Bronze art from Bihar deserves more attention.

Corresponding Author:- Kamini Krishna
Address:- Dept. of History, The University of Zambia, School of Humanities and Social Sciences.

Historical Background of Bihar:

Bihar is a states in eastern India, bordering Nepal. On November 15, 2000 the state has been divide into two states namely, Bihar (in north) and Jharkhand (in south), due to various political and economic reasons. This article focuses on united Bihar. The figures below are showing both divided and undivided Bihar.

Map1:- of India (divided Bihar,2000).



Map2:- of India (undivided Bihar).

It is imperative to highlight a brief history of Bihar to justify the significance of the title of this article. The state has played a significant role in the history of India and has been an important centre of civilization since remote past. In ancient and classical India, the area that is now Bihar was considered a centre of power, learning and culture. From Magadha arose India's first empire, the Maurya Empire, as well as one of the world's adhered-to religions: Buddhism. The rise of Mauryan Empire (324-187 BC) gave almost ultimate scope to the art and architecture in a very high order. The Mauryan art had reached its climax under famous king Ashoka whose empire was extended from Peshawar to Bengal and From Kashmir to Mysore. The Mauryan emperors were lover of art and architecture and they had warmly patronised great artist, architects and engineers of their regime. The iconography of Bihar produced many metal figures using bronze which speaks high of the artistic excellence. In addition, monolithic pillars, great stupas and numerous caves are magnificent examples of Mauryan art. Surprisingly, only one gold plaque representing Lord Shiva with his wife Parvati was found. It has been presumed that other such valuable metal artefacts must has been stolen in the due course.

The post Maurya (200 BC -300 AD) period also witnessed a great development of art and architecture under the patronage of different dynasties. Consequently, in the early year of the fourth century AD the Gupta Empire came into power (320 AD -526 AD). Chinese pilgrim Fa Hian, visited India in the fifth century AD, recorded in his diary about Patna (present capital of Bihar, earlier known as Patliputra). He wrote that it was a large and flourishing city with two Buddhist monasteries.

After Maurya dynasty, Guptas came into power by 240 AD and this is referred as the Golden Age of India. During this time a wonderful flouring of art, science, mathematics, astronomy, commerce, religion and Indian philosophy had taken place. Artist of this period had produced many Buddhist statues using metals like copper and bronze. A Chinese Pilgrim Hiewn Tsang visited India in 7th Century AD during the reign of King Harsha Vardhana, in search of Buddhist scripture. Tsang spoke high of King Harsh Vardhana's administration and also confirmed the installation of a 24 m high metal statue of Buddha at Nalanda. Gupta dynasty was followed by Pallav dynasty lasted until the 1000-1200 AD means by the succession of Muslim period, and later by the British.

The state of Bihar is very rich in mineral deposits which include coal, copper ore, gold, silver, lead, nickel, iron ore, limestone, graphite, lithium, manganese, bauxite and so on. The state is also blessed with favourable geological and geotectonic settings. The state produces different high quality food but sadly, now it is one of the poorest states of India.

A Brief History of Lord Buddha:
Buddha, the founder of Buddhism, had stated a kind of religious revolt against Brahmanism. In simple words, it can be alluded that Buddhism believes in the doctrine of transmigration and Karma, rejects the authority of the Vedas and Vedic priests, denounced blood sacrifices, Brahmanical rituals and even denies the existence of Gods. Buddha's childhood name was Siddhartha or Gautam who was born in c.566 BC in the northern India, close to what is now Nepal. He was the son of king Suddhodhana and queen Maya of Kapilvastu who belonged to Gautam clan of Sakya tribe. As a young boy, prince Gautam was mentally restless and inwardly unhappy. Father, fearing that he might abandon the world, took steps to see that nothing sorrowful came before his eyes, which was proved to be futile. The prince was disgusted with the luxury and eases of his palace, and learnt very soon that life is full of anxiety and misery. He took the great decision of giving up worldly life in search of truth and discover a path to end the sorrow of this world. Consequently, he left his family and wondered for six years, praying and seeking answers to the question concerning the meaning of life. One day, while sitting under a banyan tree in Gaya (district in Bihar) was suddenly enlightened as to the cause of human sufferings. With this experience be became the 'Buddha' or 'Enlightened one'. Now onwards, prince Gautam was known as Buddha.

Buddha gave the benefits of his enlightened wisdom to the world and also paved a new path to save mankind from the ceaseless cycle of birth and death caused by the desire and karma. He and his band of highly devoted disciples walked and delivered his sermons from village to village covering a wide area. The master and the founder of Buddhism gained popularity to the extent that the early art of India revolves mainly round the personality of Buddha.

In the third century BC, Ashoka the great Mauryan Emperor of India, made Buddhism the state religion. In addition, he encouraged to build monasteries and promoted missionary work. For almost a thousand year, from the third century BC to the fifth or six century AD, Buddhist seems to have overshadowed Hinduism, particularly in the north-west India, Bihar, Bengal expanding up to China and later in Japan and became the dominant religion of Tibet.

No doubt, the early art of the pre- Christian era did not show Buddha in the form of human being because the Hinyan Buddhists considered it an act of impiety to present a super human being , the like the master was, into a human form. Hence, whenever the artist felt the necessity of showing the presence of Buddha, they did so by having recourse to certain symbols like the footprints, empty throne, head gears, horse flying through the sky and so on. However, after the introduction of Mahayanist (first century AD) Buddha was deified as god and began to be worshipped like Brahmanical deities.

It is important to mention that Buddhism is divided in two main groups Mahayan Buddhism (believes that Buddha is God) and Hinayan Buddhism (Believes that Buddha is an ordinary man). Hinyana follows the original teaching of Buddha. It emphasises individual salvation through self-discipline and meditation. Mahayan movement arose within Indian Buddhism around the beginning of the Common Era and became by the 9th century the dominant influence on the Buddhist culture of Central and East Asia. According to this sect the Buddha is a God because they think that that the Buddha came down to earth to help people cross the sea of life. Hinayan and Mayanyana Buddhism both started with one goal, Nirvana. But both took different ways to get there.

Since Buddha was closely associated to the state of Bihar, artists produced Him in all forms of artefacts. This also proves the devotion of people to His preaching and philosophy. Not only that, the famous Buddhist monasteries in Nalanda, and Kurkihar being the main establishments and centre for Buddhist learning, it was quite legitimate to find majority of the images from above two places.

Bronze Statues and other Artefacts:
As we have already discussed that the numerous bronze devices were discovered from the different parts of Bihar, now this part highlights the technique and material that were used by the iconographers. In addition, it even presents the chemical analyses of bronze pieces found from different sites.

Bronze, an alloy of eight metals, is technically known in Silpasastra as 'astadhatu' (eight metals). Famous Indian historian, archaeologist and epigraphist N. K. Bhattashali called this alloy of eight metals as octoalloy. This alloy of eight metal as its name suggests consists of copper, tin, iron, lead and zinc, antimony, gold and silver in varying proportion. Copper was undoubtedly the chief ingredient and the last two, gold and silver are either nil or quite insignificant may be due to its high cost. The bronze statue of a dancing girl, a little figure of the bull from

Mohenjodaro and the model of a bullock cart from Harappa site (c.3000 BC) indicates that the bronze was a popular material for casting statues. Artist must had found pure copper too malleable for use and hence they mixed it with other metals to form bronze or brass which was suitable for casting statues.

It is essential to know the methods that were used by the iconographers, to cast the bronze images in early period. There two main methods of casting like 'hollow casting' and 'solid casting'. For this, we need help from our early literatures from where we find quite few references regarding the metal casting. There is a brief reference of hollow casting of images in Rg-Veda (2nd Millennium BCE), the oldest known Indian collection of Vedic Sanskrit text. The Vishnudharmottra (6th Century AD), perhaps the oldest known treatise on Indian painting and image making, also refers to both hollow and solid casting of metal images.

The technique which the artists of early Bihar employed in casting metallic statues was called 'Cire Perdue", a French word, means the lost wax Process. The Manasollasa, an early 12th Century Sanskrit text covers various topics including art. A famous historian of art and architecture S.K. Saraswati, translated and described in detail the relevant portion from the Manasollasa which explains the manufacturing of solid metal images by the lost wax process. Following paragraph explains the way the artists use to make mould for their main product.

> The image was first made apparently in wax then coated three times with fine clay which contains well-grounded charred husk, finely shredded cotton and little powdered salt. The wax was then melted and molten metal poured in the mould. After cooling the clay, the mould was broken and image was given the final finishing.

The Director-General of the Archaeological Survey of India J.H. Marshall, in his work on Taxila, furnished a clear account on the lost wax processes for hollow casting

> a model of the object was first made on clay or plaster in such a way that it could be broken without difficulty after finishing. The model firstly coated up with wax of a thickness of the metal [image] to the cast and on the wax, the artist gave the finish touch to his work. The whole was next covered with slips of clay, water and finally pounded pottery followed by a more solid coating of clay and broken pottery, after which metal rods were thrust through the mass at various points to hold the core in position and create a hole and formed tubes for carrying off wax. The whole model was then placed in a furnace and when the wax had melted and run out, molten metal was poured in to take its place. Subsequently, when the mass had cooled the outer mould was removed and the inner core racked out, leaving a replica of wax in bronze.

The last stages in the preparation were its cleaning, finishing, polishing and engraving.
Large sized images, like the Sultanganj copper Buddha, have been cast in segments.
Although, the above both techniques are capable of producing excellent results and can follow exactly the artists original model in all finest and minute details. It suffers from one obvious defect of being an only one time process. Only one cast can be obtained from one mould and duplicates are not possible. Every image has thus to be an individual piece of art. This process is still been adopted in various parts of India.

However, it is imperative to produce the results of chemical analysis of metals used by the different iconographers to find out its variation in metals and its percentage. For this, the bronze pieces from Chausa, Nalanda, and Kurkihar were obtained from Patna Museum, were analysed chemically. The chemical analysis was done at the University of Patna, (department of geology). The results are highly revealing and is shown in Table 1.

Table 1:- Chemical analysis of bronze pieces.

Metal contents of the bronzes	Chausa	Nalanda	Kurkihar
Copper	54.493%	71.884%	78.84%
Tin	19.092%	17.738%	2.08%

Zinc	11.88%	6.48%	4.32%
Lead	4.312%	2.448%	4.87%
Iron	0.5%	Trace	0.16%
Total	90.277%	98.55%	90.27%

Above results proves that the copper was used as the main component whereas others as supportive metals and the last two that is gold and silver are either nil or quite insignificant. In addition it shows that the metal contents of the alloy varied from specimen to specimen. Such is the case not only with the copper but also with the other metals which have been found in different proportions. The artists appear to have not followed any rule rigidly regarding the metallic compositions. It is also believed that possibly they intentionally varied the proportion in the light of their past experience in order to get better and better results in subsequent periods.

Close Association among Bihar, Buddha and Bronze:

As we know by this time that Buddha and bronze were closely associated to the state of Bihar. Now, this segment is presenting few artefacts found from different parts of Bihar. Since the bronze deities recovered from are numerous, it may not be possible to talk about all of them. As such, a few selected and important images have been highlighted here (taking care of different period and only icons of Buddha) which were found sometimes by excavation and sometimes by chance. The chemical analysis focuses on metal piece results which were found from Chausa but the article does not feature the images from there. The reason is that the findings from Chausa represent only Jain images.

The colossus metal (copper) Buddha of 2.1 m in height and over a ton in weight was found in Sultanganj in the district of Bhagalpur. This statue is presently housed in the Birmingham Museum and Art Gallery in the UK. The image bears testimony to the high skill of metal it is an important product of the eastern version of Gupta art (c.4th to 5th century AD) which bears testimony to the high skill of metal smiths of those days.
(Fig. 1)

One interesting image of Buddha was found at Kurkihar where Buddha is seated in the earth-touching posture (bhumisparsha-mudra) upon a fully expanded lotus placed upon a pedestal with three figures of lion carved on it, suggesting thereby the seat (throne) of the god should be on the lion's back. There are three ruby pieces stud on the throne, just on top of the lion's head. With an ascetic body and face full of success and mission, the image makes the Zenith of Pala art. The image bears an undated inscription on its back which can paleographically be dated in the eighth and ninth century AD. (Fig. 2)

Figure1:- Buddha from Sultanganj.

Figure 2:- Buddha from Kurkihar.

From Nalanda, a bronze stupa was found from the monastery site No. 1, from the Devpala reign (c. ninth century AD) is of particular interest. The upper tier of the drum is octagonal which contains the conventional scenes from

the life of Buddha. It has been portrayed in series of panels from his birth to his nirvana (death). Above it there is dome like top surmounted by the umbrella of eight discs. (Fig. 3).

There is an artistically beautiful statuette of Buddha from Nalanda which speaks highly of the skill of the iconographer of Nalalnda who did create a superb image during the reign of Pala rulers. It exhibits the god standing in abhanga pose (a standing pose with a slight bend in the figure). The statue is remarkable for the graceful modelling of the figure. No doubt, the long robe covering the body which has semicircle schematic lines carved on it, displays an excellent work of iconographer.(Fig. 4)

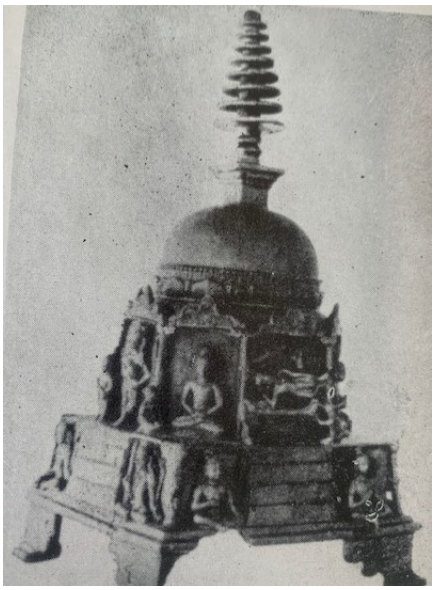


Figure 3:- Stupa from Nalanda.

Figure 4:- Buddha from Nalanda.

The Buddhist goddess Vajra Tara, an emanation of the Dhyani Buddha Ranasambhava, is one of the extremely popular goddess among the Vajrayanists. From Chandipur, a small village close to Bhagalpur, had recovered a highly interesting bronze image of a Buddhist goddess sitting in the middle of a lotus of eight moveable petals, identified by a French scholar A.Foucher (has been called the father of Gandhara Studies) as Vajra Tara represented within the magic circle (mandala). It is interesting to find this kind of metallic work was done around eleventh or twelfth century AD. (Figs 5-6)

Figure 5 and 6:- Bodhisattva from Chandipur, open and closed respectively.

In addition to Buddha's and other god's deities, varieties of religious artefacts have been recovered from Nalanda, Kurkiha Chandipure, Fatehpure and Chausa. These are bronze stupas, temples, gongs, conches, bells, umbrellas and so on. They are in themselves valuable objects of Indian art. It would, therefore, be worth discussing some of these objects obtained from different places in the states. (Figs 7, 8 and 9)

Figure 7:- Umbrella from Nalanda.

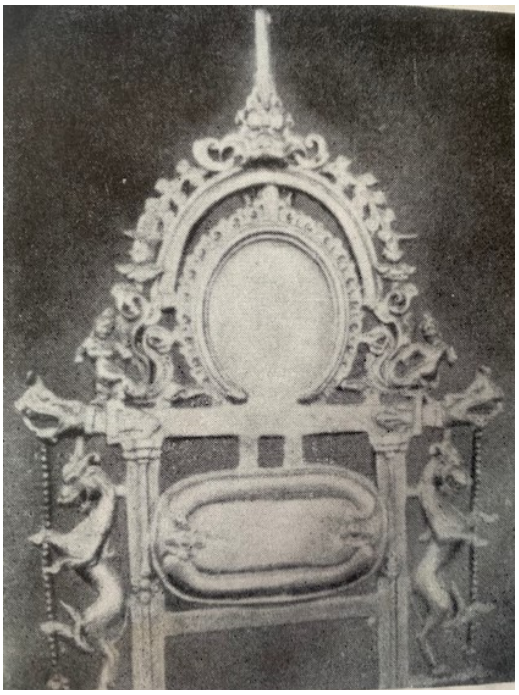


Figure 8:- pedestal of image from Kurkihar.

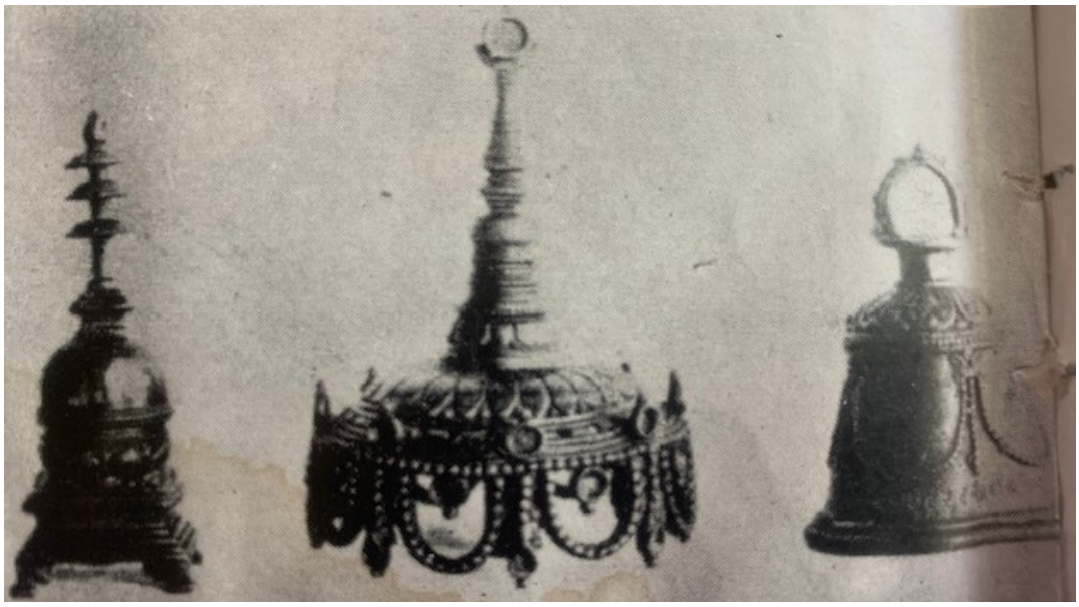


Figure 9:- Stupa, Umbrella and bell from Kurkihar.

Concluding remarks:-

The article has reconstructed a history of close relationship among, Bihar, Buddha and bronze**.** When we think about Lord Buddha, it is not possible to overlook Bihar where he was enlightened and had many monasteries. As discussed earlier, Bihar is rich in minerals which must had provided opportunity to the artist for exhibiting their

exceptional skill. Finally, the iconographer must be given credit to produce a number of Buddhist and His associate's images using the metal bronze**.**

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