

Copper Treasure of the Gangetic Region and its Legacy in the 15th to 10th Centuries BCE

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Abstract: Copper Treasure holds a significant place in Indian archaeology. It is unique in its types and technology. The copper tools were first discovered in 1822 in Bithur, Kanpur. Since then, such tools have been found in groups or numbers of two or three across various regions, including the Indus Valley Civilisation, copper hoard culture, Deccan, and eastern region, especially from the Gangetic Doab in northern India. The Copper Treasure of India refers to the abundant archaeological evidence of metal use and its enduring cultural, technological, and economic significance in Indian history. This study characterises the analytical research of harpoon hooks, antennae swords, and anthropomorphs of the Gangetic region in northern India. Its symbolic religious significance, trade network, and tool techniques range from weaponry to ceremonial importance.

Keyword: *Gangetic Treasure, Technology, Trade, Weaponry, Tradition.*

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I. INTRODUCTION

At the beginning of the 20th century, archaeologist Vincent Smith¹ Considered the tradition of copper treasure from an archaeological perspective and presented a brief introduction to copper tools found in various parts of India (Smith 1905). Its early discovery, wide range of uses, and lasting impact on cultural and technological development are referred to as the copper treasure of India. This legacy spans from the early Chalcolithic period, approximately 3000 BC (Agrawal 1971), through the Bronze Age and into historic times. The copper hoards relate to the displaced people of the Indus Valley civilisation (Piggott 1944) who were forced from their original homeland in the Indus Valley and began residing in the Gangetic Dawab area.

Archaeologists Heine Geldern² and Stuart Piggott³ associated them with the Aryans. (Robert 1956) However, whether the copper treasures originated independently or were spread from another area remains unclear.

On the other hand, the Origin of Copper Culture and Its Diffusion Across India, whether it was an Independent Culture that flourished in Different Places in India or a sub-division of Copper Culture, also remains Unclear.

In the 20th century, the discovery of copper Treasure (Lal 2009) across the **Gangetic plains Group** in North India, including Pondi, Gungeria, Bisauli, Rajpur Parsu, Manpur, Chanduali, Saipai, Fatehgrah, Sheorajpur, Bithur, Kosam, Mainpuri, Resgavon, Sarthauli, Gandhauri, Parihar, and Varanasi, is noteworthy. **Eastern group:** Hami, Bhagrapir, Baragunda, Santal, and Khunti. **South Western Group:** Lothal, Rajkot, Rangpur, Kallur, Pikkililhal, Tekkalkota, Hallur, Ahar, Navdatoli, Chandoli, Daimabad, Nevasa, and Gaurimedu. **Western Group:** Gilgit hoard, Fort Munro, Chanhudaro, and Mohenjo-daro. See (Fig.1).

¹ V.A. Smith: Vincent Arthur Smith (3 June 1843 – 6 February 1920) was an Irish historian, member of the and curator.

² Heine Geldern: (July 1885 – May 1968) was an Austrian anthropologist, ethnologist, archaeologist, and prehistorian

who studied in particular the cultures and civilisations of Southeast Asia.

³ Stuart Piggott (May 1910 – September 1996) was a British archaeologist, best known for his work on prehistoric Wessex.

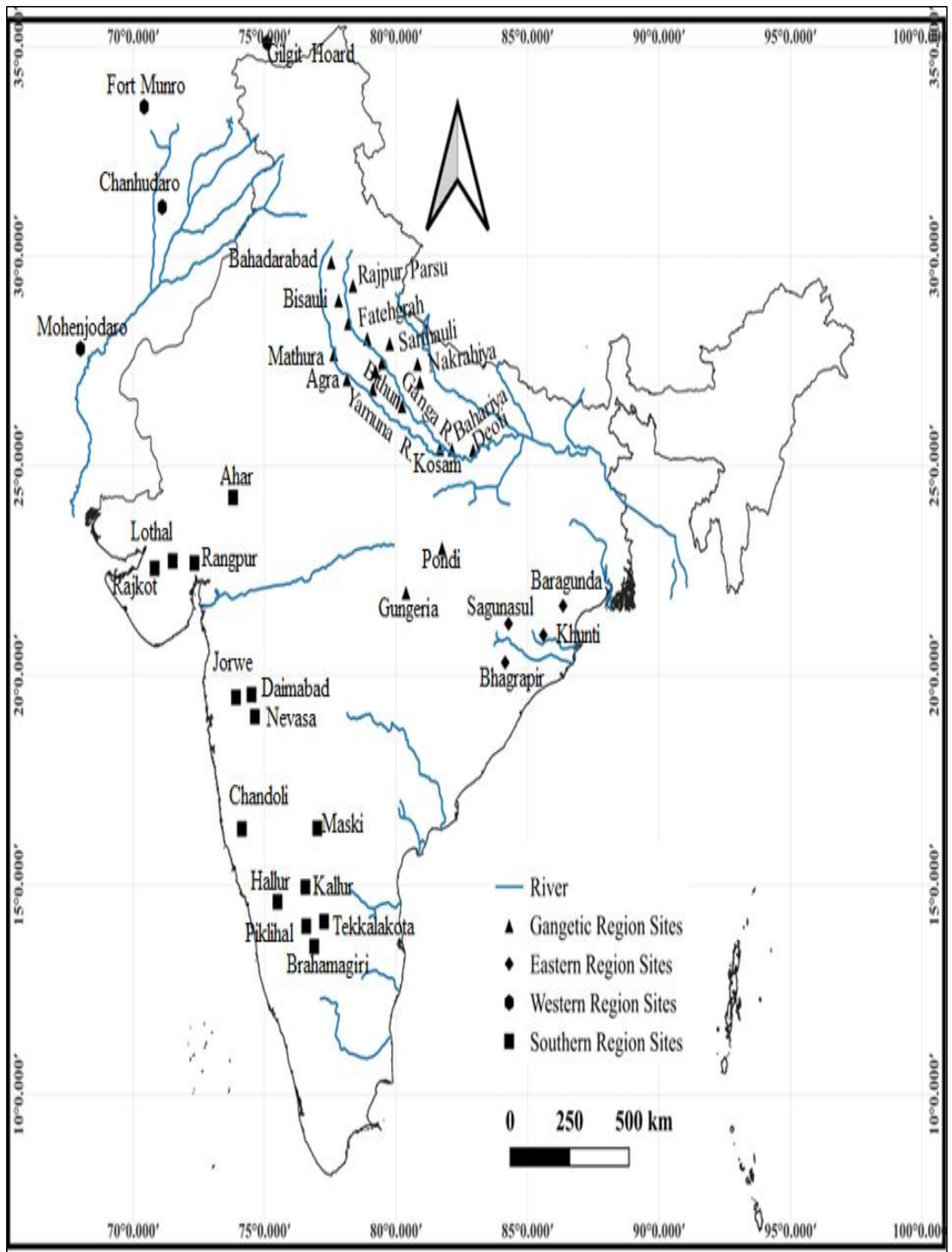


Fig 1 Prevalence Area of Copper Treasure

Most Gangetic hoards are located between 78° and 84° east longitudes (Fig.2), and unique treasures, such as anthropomorphs, hook harpoons, lance heads, and Antennae swords, were excavated from the Gangetic region.

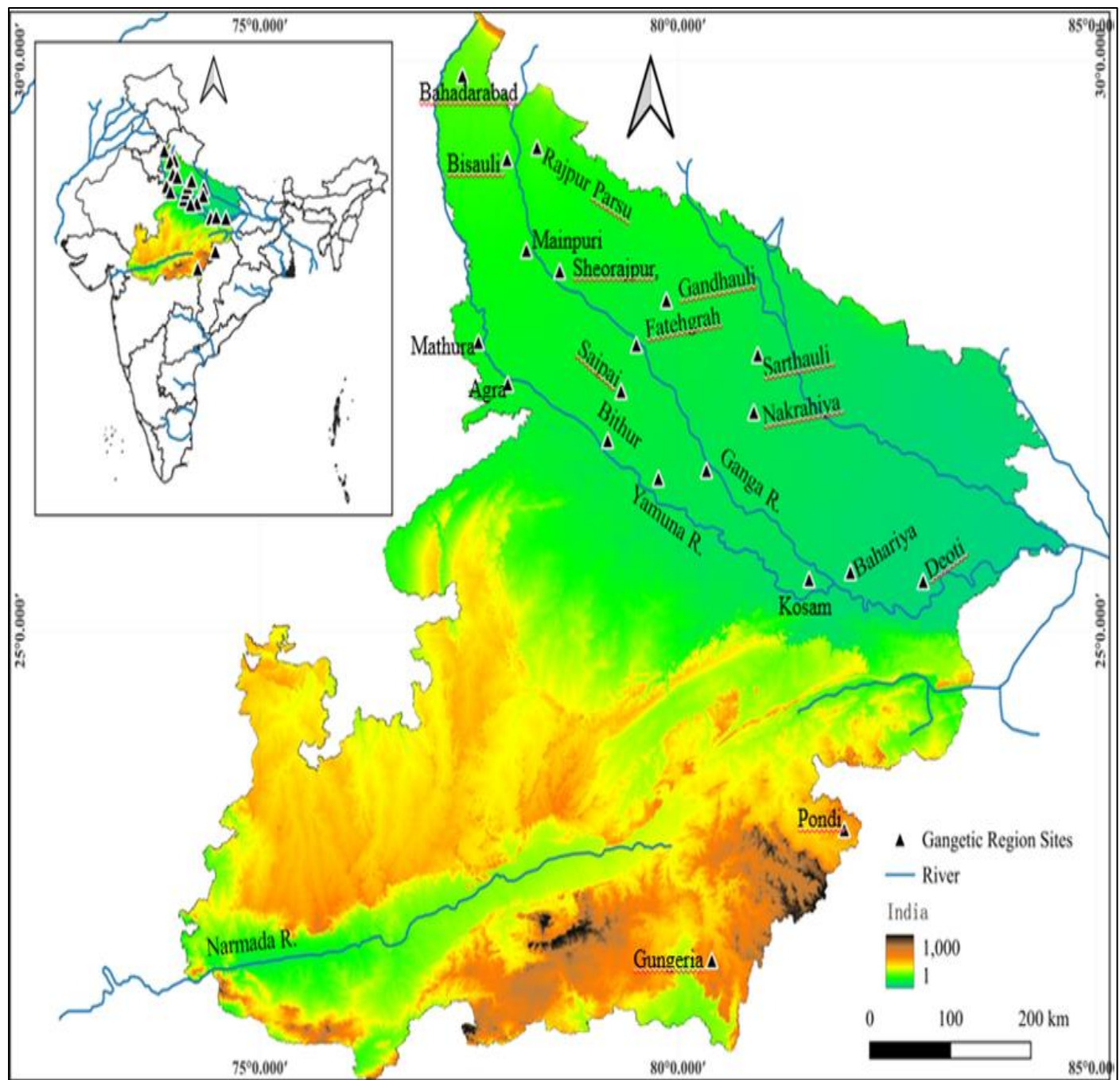


Fig 2 Gangetic Copper Treasure Group Site in North India

Aside from anthropomorphs, hook harpoons, and lance heads (swords), other tools, including axes and subtypes (I, II, III) double axes, axe ingots, bars, bar celts, bangles, bucrania, etc, see plate 1, were found throughout much of India (Maheshwar 1995). This paper explores the utilisation of copper in India, from its extraction and smelting to its symbolic and practical applications. By examining archaeological evidence, historical records, and metallurgical studies, we aim to understand how copper became a cornerstone of India's heritage and why it remains a valuable part of the country's legacy today.

II. MOST UNIQUE COPPER TREASURE OF THE GANGETIC REGION

➤ Hooks Harpoons

Hook harpoons, copper treasure, were primarily recovered from Bithur Kanpur and other north Indian Copper Sites, which are similar to the Ocher Pottery (OCP) Culture, dating back to the end of the 2nd millennium BCE. The Shape of the blade of fish harpoons is usually triangular, like the blade of an arrow. Based on their design and the arrangement of barbed hooks, harpoons can be classified into three distinct subtypes (Yule 1989), as shown in Fig. 3. The first type was

made by cutting a copper sheet and hammering it to achieve the desired shape. (Yule 1997) The upper part of the first type of harpoon is long, pointed like the spine, with three to five pairs of oblique barbs. The upper part of the Second (II A, b) sub-type harpoon is pointed like an arrow with long, narrow, and sharp tips. It is designed to pierce swiftly through water and soft-bodied fish. Below the blade (Agrawal 1969), there are usually four or five, but some of them with 7 or more pairs of oblique sharp thorns at equal distances on both sides.

There is a slight bulge on both sides below the thorns and above the handle, and a hole in the bulge on one side; however, the second (II B) subtype hook harpoon reduces the number of oblique barbs. Likewise, the complex casting of the second type of Fish hooks is possible only with a closed mould (Piggot 1944).

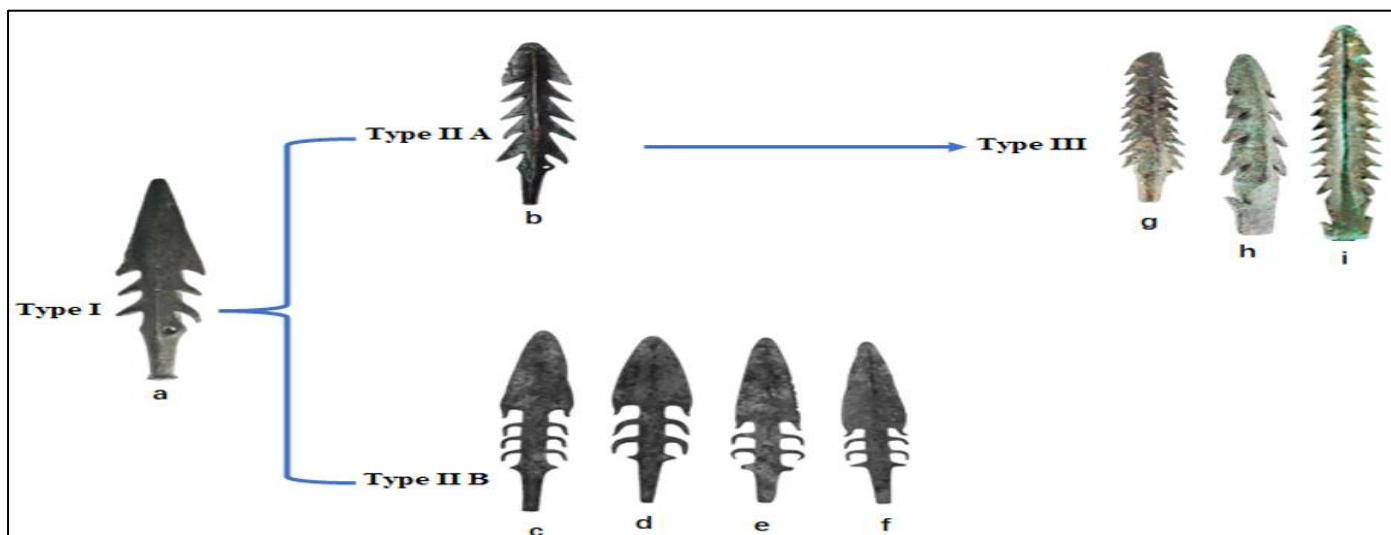


Fig 3 Gangetic Hooks Harpoon (N. Delhi National Museum)

Type III harpoons differ from earlier types in several key ways (Yule 1985). Unlike previous versions with sharp, lance-like blades, these harpoons feature numerous dull-edged barbs branching from both sides along the entire shaft. The shaft has a flattened, diamond-like shape, while the shank is rectangular and untapered, unlike other harpoons. Instead of an eyelet to attach the head, they have a backward-facing hook near the butt, sometimes on both edges. These weapons are generally large, roughly made, and not as refined as Type II harpoons. Despite the crude craftsmanship, they share a consistent shape and size, indicating uniformity within the group.

➤ *Antennae Sword*

Antennae swords were excavated with a hook harpoon mostly from the same archaeological site, dating back 12th century BCE. The average length of such tools is 40 to 70 cm. The shape of the blade of Sword I, the head is almost parallel-sided. The structure of the blade and the spine is quite strong. Below the blade is a handle about 10 cm long, Fig.4, in the lower part of which a point or Horn protrudes outwards. This horn was not made by moulding it with the tool; Instead, it was made by cutting the lower part of the handle and then hammering it to the desired shape. Sword II has two hilt Antennae, which is why they have been given this name. The length of the Antennae swords from the blade to the hilt is about 45-50 cm. The length of each antenna of the hilt is about 10 cm. Fig. 4.

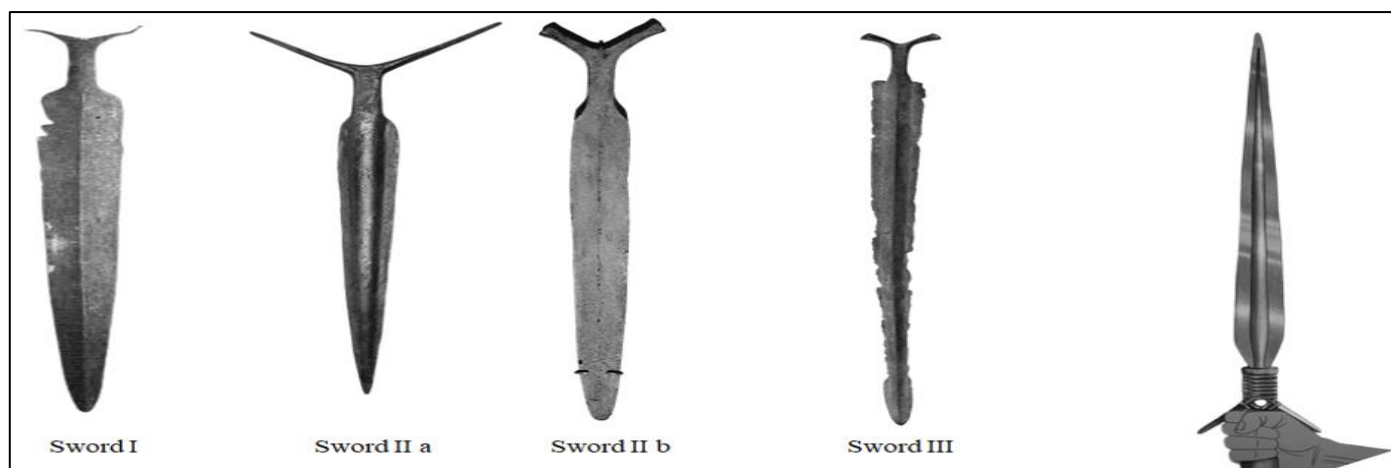


Fig 4 Gangetic Antennae Sword (N. Delhi National Museum)

These swords are relatively heavy, have a pronounced spine and a cast horn-shaped handle. Since they were not very heavy, they must have been used by holding them in the hand (Piggot 1944). Archaeologist D.P. Agarwal has expressed doubts about their use in battle due to the inconvenient bifurcated handle (Agrawal 1971). Rather, estimated that they must have been used for hunting animals. Sword III is a replica of Sword II, except for a 10 cm long handle featuring two holes—one of which includes a side hook. Unlike its predecessor, Sword III appears to have been designed exclusively using a wax mould (Agrawal 1969).

➤ *Anthropomorph*

These tools are called by this name because they resemble anthropomorphic figures (Maheshwar 1995). Archaeologists divided them into two basic types (fig.5) by

their proportion in combination with morphological features. First type Anthropomorph Height range is approximately 24 cm, and their width is 0.65-0.88 cm (Agrawal 1969; Yule & Hughes 1989). The hands of tools of this category are bent inwards, and the feet are bent outwards. They are made by cutting uniform copper sheets and beating them with a hammer (Gupta 1963). The Second type of Anthropomorphs is bigger than those of type I. The Part towards the head is relatively thick, and the arms are thin. The back side of the arms has a sharp edge, while the inner side of the feet is blunt. Therefore, there isn't a striking contrast in both type I and II Anthropomorph (Gupta 1963); however, what was the purpose of these tools? It is not clear. Due to their resemblance to human figures, it has been assumed that these must have been related to some religious ritual. Moreover used to hunt by throwing them (Agrawal 1969).

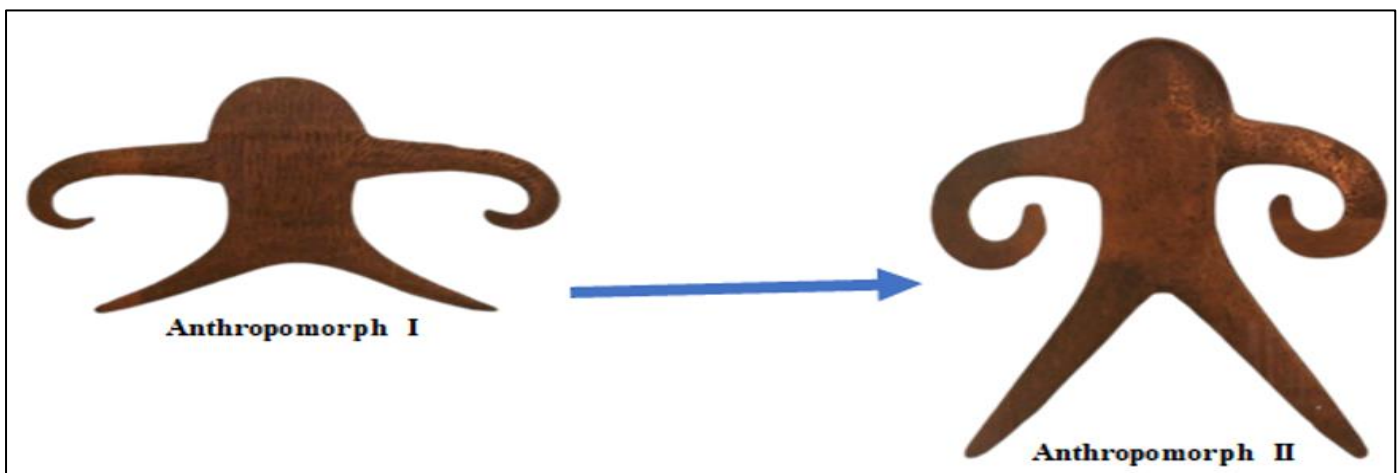


Fig 5 Gangetic Anthropomorph (N. Delhi National Museum)

III. ANCIENT METALLURGICAL ARTEFACTS AND THE ARTISANS OF COPPER TREASURES

According to Indian Scripture, Bronze doesn't appear during the Vedic age (Neogi 1979) as it is not mentioned in any of the Vedas. However, the scriptures Rigveda, Atharvaveda, Ramayana, Mahabharata, and Kautilya Arthashastra mention the utilisation of metals like Ayas (Iron or Copper) in Ancient India. Scholars interpret "śyāma ayas" as iron and "lohita ayas" as copper, indicating a clear distinction between these metals in Vedic literature (Atharvaveda 11.3.7). Kautilya details the characteristics of copper (tāmra) and iron (āyasa) ores (Arthashastra, Book 2, Chapter 13, Verses 3–5).

Native copper tools such as daggers, fishhooks, arrowheads, spearheads, harpoons, razors, bowls, and wire have been discovered from (IVC) sites like Harappa, Mohenjo-Daro, Kalibangan, Mundigak, Rana Gundai, and Gungeria, dating back to the 4th millennium BC (Lal 1951). But the origins of metallurgy remain a mystery (Agrawal 1971). However, the metals were first produced and utilised by humans in the past. On the other hand, Domestic utensils such as lance heads, daggers, knives, axes, and ornaments like bangles, earrings, and rings were early discoveries from

Baluchistan and extensive cold-hammered copper implements, numbering 424, were discovered from Gungeria, dating back to earlier than 3000 BCE (Ojha 1972). Archaeologist Paul A. Yule conducted extensive research on the Bronze Age of India, studying early bronze tools from the India Museum. He examined materials collected primarily from south western India, Rajasthan, Gujarat, Maharashtra, and midwestern India, Ganges-Yamuna Doab in Uttar Pradesh, Eastern Chota Nagpur, and the South Indian Museum (Yule 1985). In addition, tools excavated from outside India include significant sites in Pakistan and Afghanistan. As a result, Yule's work compiled Copper artefacts together.

Metallurgical Study by Archaeologist Panchanan Neogi, a flat celt discovered at the Jabalpur archaeological site in Madhya Pradesh, contains (Cu 86.7%, Sn 13.3%). A sphere from the same region has (Cu 95.68%, Sn 3.83%). A spearhead and a harpoon from Etawah in Uttar Pradesh contain (Cu 91.12%, Sn 7.97%), and another harpoon has (Cu 93.18% and Sn 6.74%). (Neogi 1979) This indicates an accidental mixture as the spearhead contains only Sn 3.83%. However, the flat celts show Sn 13.3%, Table 1 indicating the composition of the tin pure bronze (Copper +Tin) a thousand millennia BC ago.

Table 1 Metallurgical Study by P.N. Neogi P 34,35

Site	%Cu	%Sn	Object
Daimabad	99	-	Elephant
"	98.93	-	Buffalo
"	92.51	6.51	Rhinoceros
"	93.08	5.03	Chariot

At the same time, archaeologist Bendapudi Subbarao discovered a Unique bronze Animal figurine, viz., elephant, rhino, buffalo, and chariot with driver. Fig.5 (a,b,c,d) from Archaeological Site Daimabad in Ahmednagar, Maharashtra (Subbarao 1958). Later, Yule's scientific study makes it more precise and indicates scientific and advanced metallurgy

(Table 2, Yule 1985), other than in the Gangetic region. What was the main purpose of creating this Heavy Animal, whether for Transportation or agricultural importance? Therefore, in the discussion, it will be clarified the origin and utilisation of the Copper Treasure.

Table 2 Metallurgical Study by Paul Yule, pp. 100- 101

Site	%Cu	%Sn	Object
Jabalpur	86.7	13.3	Flat celt
NA	95.68	3.83	Bronze Sword
Nohram Castle	91.12	7.97	Harpoon
NA	93.18	6.74	Harpoon head



Fig 6 Unique Bronze Figurines of Daimabad (Fig. 6) N. Delhi National Museum

IV. DISCUSSION

There is a significant number of dissents among archaeologists regarding the maker or inventor of the Copper Treasure (Lal 2009). However, After conducting a comparative study of bronze mace heads from Chanhudaro and Antennae bronze sword from Hissar with the Antennae

bronze swords from Kuoba, Central Asia, Austrian archaeologist Hein Geldern associates the Copper Treasure with the arrival of the Aryans (Robert 1956), via the Danube region and Iran in the 2nd millennium BC. Fig. Stuart Piggot believes that the creators of the treasure are the displaced inhabitants of the Indus Valley civilisation (Piggot 1944).

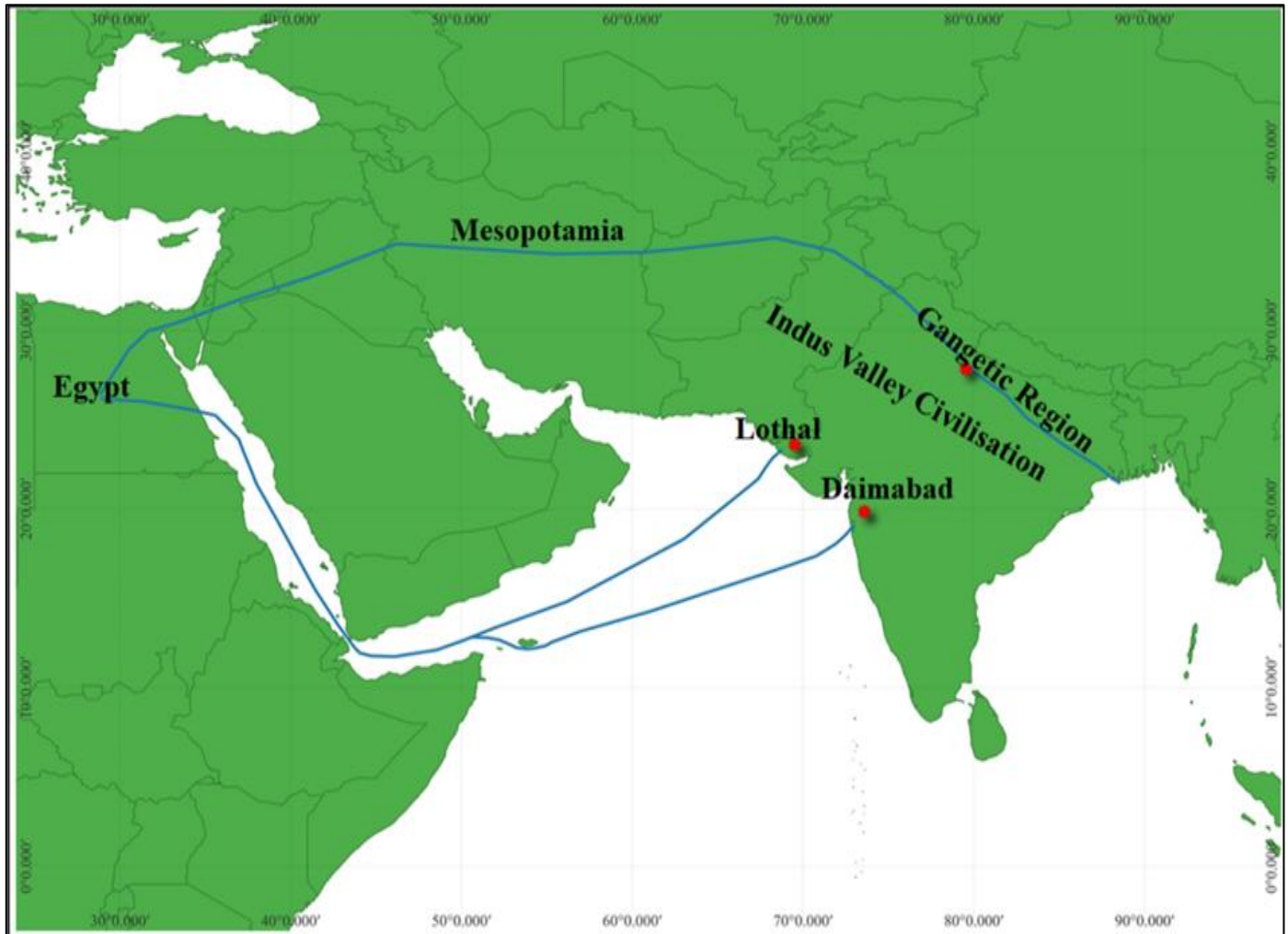


Fig 7 Ancient Bronze Age Trade Conversation

However, Indian archaeologist B.B. Lal refuted Geldern's theories and hypotheses. The tools proposed by Geldern are made of bronze, whereas the tools of the Gangetic region are made of pure copper (Lal 2009). However, there are significant differences in the typology of the Gangetic tools and the Central Asian bronze tools. The hilt of the side-sword from Kuoba was added separately after casting the blade, while the hilt and blade of the Antennae sword were cast as a single piece (Sharma 2019). Additionally, fish hooks, swords, human figures and other similar tools are not found outside the upper Ganga valley (Subbarao 1958). Therefore, B.B. Lal also rejected another hypothesis linking the Copper Treasures with the displaced people of the Indus Civilisation (Lal 2009). However, according to Archaeologist Paul's scientific study on the unique bronze animal figurines, the rhinoceros contains 6.5% tin (Sn) and the chariot contains 5.03% tin (Yule 1985), indicating a sophisticated understanding of metallurgical techniques. These findings

suggest a diffusion of metallurgical knowledge from the western regions. In contrast, the elephant and buffalo figurines were made of pure copper, which aligns with the characteristics of the Gangetic copper culture, indicating a north-to-south diffusion of metallurgical practices across the Indian subcontinent.

The basis of this objection is that pottery similar to that of the Indus Civilisation is not found in the strata of the Copper Treasures. Furthermore, no other objects have been discovered that could link the Copper Treasures to the Indus civilisation.

➤ *Some Archaeologists Believe that the*

- The pottery shapes of Ochre Ware can be compared with the pottery shapes of the Late Harappan culture of western Uttar Pradesh and neighbouring areas (Dikshit 1979).

- The pottery types of the mature Harappan period have not been found at Abkhedi in the Saharanpur district; however, utensils imitating them, such as simple, small, turned dishes (Dish-on-Stand), have been discovered. The pottery types of Abkhedi can be compared with the pottery of the later Harappan period of Alamgirpur in Meerut district (Singh 2013).
- Various types of OCP are wheel-made. This indicates that their maker did not lead a nomadic life but lived permanently. Suppose the makers of cooper hoards are considered to be the original inhabitants of the Gangetic

regions, then it seems difficult to justify the ochre pottery being wheel-made because how would the people who were making pottery have begun using the wheel? (Nair 2012).

- Copper treasure artefacts, except for human figures and bangles, were primarily made by casting in open or closed moulds. Some used the advanced 'Lost Wax' method. (Agrawal 1971). The designs of Antennae swords and fish-hooks exhibit high skill. However, thermo-annealing was likely unknown, indicating limited metallurgical development despite impressive casting techniques.

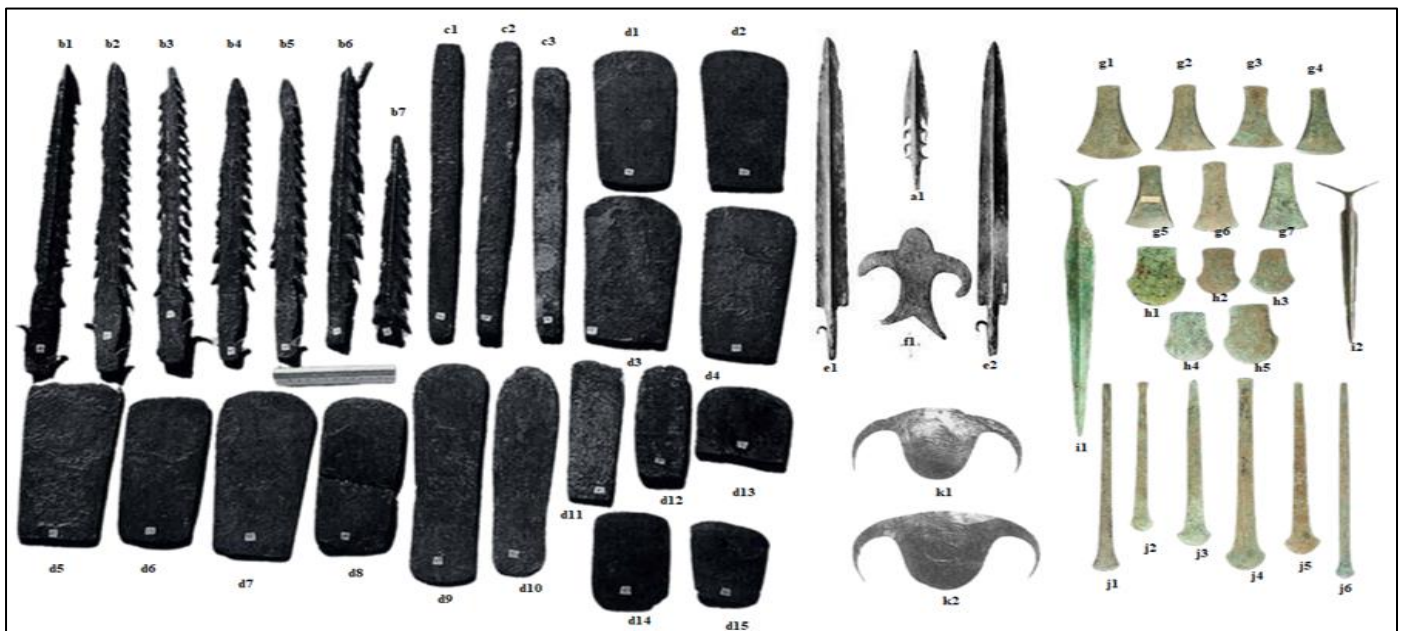


Fig 1 Copper Treasure of India, New Delhi & Lucknow Museum

V. CONCLUSION

The opinions mentioned above indicate that the copper treasures are linked to an independent and unique culture in the early history of India. On the other hand, the relation of the copper treasures with other cultures cannot be established based on metal tools and antiquities because no specific connection can be drawn between the antiquities of the copper treasures and elements from these cultures. Therefore, it does not seem reasonable or logical to reach any conclusion based on the shape and external appearance of the tools. It is also possible that the copper treasures and the ochre pottery are not the Components of a single culture but rather indicative of two different cultures that may have interacted over time, while the bronze tool only appear other than the Gangetic region so it become most precisely that the copper treasure culture was independent and unique flourished in the northern India. A distinctive bronze artefact was unearthed at Daimabad in Maharashtra, alongside numerous other bronze artefacts discovered across various regions of India dating to the 2nd millennium BCE. These findings suggest a widespread familiarity with metalworking during this period. However, archaeological evidence indicates that communities in the Gangetic plains predominantly utilised copper rather than bronze around the 15th century BCE. This regional preference strongly supports the view that the

Copper Hoard Culture developed independently in northern India. Over time, this culture appears to have diversified and extended into multiple regional expressions throughout the subcontinent. While it is plausible that external civilisations—such as those of Egypt, Mesopotamia, or later, Rome—may have had some influence on metallurgical practices in India, the core characteristics of the Copper Hoard Culture are distinctly indigenous. The extensive research conducted by archaeologist B.B. Lal reinforces the hypothesis that the Copper Hoard artefacts represent an autonomous cultural phenomenon rather than a derivative of foreign traditions.

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