

# Iron Age of India

## भारत में लौह युग



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- ▲ One of the most important technological advances of mankind is the mastery of iron and the introduction of what may be archaeologically described as the Iron Age.
- ▲ This gave man a very useful metal that could at once achieve adequate hardness and sharpness to meet nearly all his requirements in daily life, and yet more serviceable than copper or bronze which were found and worked before.
  
- Everywhere throughout the world, the Iron Age comes after the copper-bronze age.
- The transition from copper to iron raises a number of questions- Was iron smelting an accidental by-product of copper smelting? Were the refining and working of iron well inside the scope of the specialized ability of coppersmiths?
- As we all know that copper melts at  $1083^{\circ}\text{C}$ , while iron melts at the much higher temperature of  $1534^{\circ}\text{C}$ .
- Hence, the smelting of iron requires furnaces that can keep up extremely high temperatures.
- Iron ore is related with a bigger number of impurities than copper ores and requires the maintenance of a number of conditions for successful smelting.
  
- ▼ Iron produced by smelting is now known to be of three kinds, namely, (i) wrought iron with little or no carbon, i.e., about 0.08% or lower, (ii) cast iron with up to 7% of carbon, which renders it hard but brittle, and (iii) steel, with up to 1.7% of carbon, which makes it hard but not brittle.
- ✦ The evidence on the beginnings of the Iron Age in India has not yet been correlated.
- ✦ In north India the earliest occurrences of objects of iron or objects proving its manufacture and use have been discovered in early stage at

Hastinapur, Alamgirpur and Kausambi in Uttar Pradesh and at Ujjain in Madhya Pradesh.

- ✦ In all these sites iron objects occur for the first time in association with Painted Grey Ware, a later phase of the distinctive ceramic known.
- ✦ Stratigraphically the Painted Grey Ware and the associated cultural assemblage are lower and earlier than the Northern Black Polished Ware.
- ✦ The Iron Age is characterised by a diverse range of historical events, such as the migration of Aryans, the growth of cities and urban society, the emergence of states and empires, the spread of Megalithic culture in South India and the developments of distant trading activities including not only South Asia but the surrounding regions.

- ✧ Two major theories have been established on the origin of iron in India such as, the **external origin theory** and the **indigenous origin theory**.
- ✧ Regarding the former, R.E.M. Wheeler argues that the iron technology was brought to India and South Asia by the Achaemenids in the fifth century BCE.
- ✧ N.R. Banerjee seeks the origin in Aryans who brought the iron technology from West Asia.
- ✧ He puts the date of the introduction of iron around 1000 BC based on increasing archaeological evidence predating the fifth century BCE.
- ✧ On the contrary, the indigenous origin theory that has become favoured among archaeologists since the 1970s (D. K. Chakrabarti, M.D.N. Sahi, K. T. M. Hegde, R. Tiwari, V. Tripathi) is based on the emphasis on the rich iron ore in various parts of India and the ethnographic records of pre-industrial iron production among tribal people in addition to the examinations of archaeological evidence.

- ✦ Actually, the beginning of iron technology is not the same thing as the beginning of the Iron Age.
- ✦ A distinction has to be made between the presence of iron objects at a site and a major use of iron.
- ✦ As pointed out by D. K. Chakrabarti, iron ores suitable for pre-industrial smelting are found in all parts of the subcontinent, except the alluvial river valleys.
- ✦ Evidence from later Vedic texts suggests familiarity with iron and the use of iron in agriculture in the upper Ganga valley in 1000 BC to 500 BC.
- ✦ The evidence from archaeology gives more detailed and specific evidence for the beginning of iron technology and the beginning of the Iron Age in various parts of India.
- ✦ Many early iron using centres are identified within the subcontinent like, Baluchistan and north-west; Ganga river valley (upper Ganga valley); Rajasthan; eastern India; Malwa and Central India; Vidarbha and also the

Deccan; and South India. Of these centres are located just about ore resources.

- + There is broadly prevalent but misplaced belief that iron technology was introduced into the subcontinent by the Indo-Aryans.
- + Megaliths are related to the beginning of iron technology in peninsular India.
- + Painted Grey Ware (PGW) sites in the Ghaggar-Hakra area haven't given evidence of iron artefacts.
- + At Jakhera and Kaushambi, iron has been found together with Black and Red ware levels. Within the Ganga-Yamuna doab, the earliest iron objects are generally associated with PGW.
- + It was first identified at Ahichchhatra. After excavations at Hastinapur, its full significance was understood.
- + PGW contains a very extensive distribution, right from the Himalayan foothills to the Malwa plateau in central India, and from the Bahawalpur region of Pakistan in west to Kaushambi in Uttar Pradesh in eastern part of India.
- + In Rajasthan, Noh has similar cultural sequence as Period I is marked by Ochre Coloured Pottery, Period II yielded BRW and Period III was marked by PGW and iron artefacts have yielded from this period.
- + PGW contains a very extensive distribution, right from the Himalayan foothills to the Malwa plateau in central India, and from the Bahawalpur region of Pakistan in west to Kaushambi in Uttar Pradesh in eastern part of India.
- + The beginning of iron technology in the middle Ganga plain suggested on the premise of findings is that the early and mid 2<sup>nd</sup> millennium BC.
  - o Calibrated C<sup>14</sup> date at Dadupur (near Lucknow)- 1700 BC
  - o Period II (iron bearing) at Malhar dated- 2<sup>nd</sup> millennium BC
  - o Period II (iron) at Raja-Nal-Ka Tila (Belan valley)- 1300BC
  - o Period IB (iron) at Jhusi (Allahabad)- 1300 BC
  - o Period II (iron) at Narhan (Saryu river)- 800-600 BC
- + There is a broad cultural continuity between the Chalcolithic and early Iron Age levels in Central India.
- + The iron bearing BRW level sites in Central India have directly follows Malwa culture level.
  - o At Nagda on bank of the Chambal river and at Eran on the bank of the Bina river, iron is found from BRW levels.
  - o Period II at Nagda (BRW) is marked by iron objects.
  - o Period IIA at Eran (BRW) has iron objects.
- + The earliest iron objects in Deccan occur along with BRW levels and many of them are related to megaliths.
  - o At Prakash, iron objects have been found with BRW levels and followed by NBPW level.

- In Maharashtra, several megalithic habitation deposits like, Takalghat-Khapa, Naikund, Mahurjhari, Bhagimohari, Borgaonand Junapani, are related to iron objects.
  - The calibrated dates at Naikund range are 800-420 BC and 785-410 BC.
- ✚ In south India, the earliest iron artefacts appear in the overlap between the Neolithic and megalithic phases.

### **Urbanisation in Ganga river valley**

- The use of iron artefacts widely distributed in the Ganga valley during 800-500 BC which called second Urbanisation in India, noticed large scale beginning of town life in the region.
- **D. D. Kosambi**- the eastern movement of the Indo-Aryans was so as to achieve the iron ores of south Bihar.
- **R. S. Sharma**- highlighted the role of iron axes in clearing the forest of the Ganga valley and iron ploughs in agricultural expansion in this area.
  - He argued that the use of these implements was responsible for generating an agricultural surplus and paved the way for the second urbanisation in the Ganga valley.
- **Ghosh and Niharranjan Ray**- argued that the forest of the Ganga valley could have been cleared through burning.
- Technology is certainly a very important factor in history, but it's to be considered together with other variables.
- The use of iron and its impact increased gradually over the centuries and is reflected in the increased numbers and range of iron objects in NBPW phase.