CHAPTER I
INTRODUCTION

Indian history has been categorized into different periods e.g. prehistoric, protohistoric and historic period. The protohistoric refers to a period between prehistoric and historic. It is the study of the period just before the beginning of recorded history. It denotes the period in any region following prehistory and preceding the appearance of articulated history derived from written records. It signifies a transitional time period between prehistory and recorded history. It merely depends on archaeological evidence. The protohistoric period is well known for the use of weapons and implements. The weapons and implements have played an important role in the development of human civilization from early times to the present day. The weapon is a device or an instrument which is used in attack or defense in combat, fighting or war etc. like arrow, spear, parasu, dagger, sword etc. The implement is an instrument or tool, used for different activities like agriculture, crafts, household etc. The important implements are axe, sickle, chisel, borer, drill, knife etc. Archaeological evidences suggest that these weapons and implements were used massively during protohistoric period. They were made of different materials such as metal, stone, terracotta, bone, Ivory etc.

GEOGRAPHICAL AND CLIMATIC FEATURES

The Indian sub-continent is heterogeneous in terms of climate, rainfall, soil, hill, mountain, river, habitation, vegetation, wildlife etc. The great Himalaya in the north keeps the country isolated from the rest of Asia. The oceans and Himalayan Mountains restricted the entry of foreigners in the sub-continent since early times. The Gomal, Khyber and the
Bolan passes and the long coastline of India provide favourable condition for trading activities. India has different type of geographical features like mountains, plain, desert, plateau, coastal areas, plains and islands etc. India is a tropical and sub-tropical country. The tropical part of the country has some moderate type of climate due to the influence of ocean. The subtropical part has extreme hot and cold climate, the Indo-Gengetic plain has been the historical epicenter of ancient culture and civilization in India. It has been formed by the Himalayan rivers mainly Indus and Ganga. The vast plains of these two rivers were favourable for the agricultural activities. The northern plain of Indian subcontinent has become the home of protohistoric culture and civilization like, Indus valley civilization, copper-hoard, PGW etc.

The Indus valley civilization flourished on the river of Indus and its tributaries. The important sites like Mohenjodaro, Kotdiji, Chanhudaro, Amri, Mehargarh etc. are located on the bank of Indus River. The Harappa is located on the Ravi River. The important Harappan sites in India like Banawali, Kunal, Rakhigarhi, Balu, Mitathal, Kalibangan etc. are located on the bank of the river Saraswati or Hakra. Manda is located on the bank of Chenab River. The Harappan sites in Indian Punjab are located on the bank of river Satluj. The Copper hoard culture in India has been divided into different zones on the basis of the typology of artifacts that have been found in the hoards.¹
Zone A comprises Bengal, Bihar and Odisha. This zone is characterized by the occurrence of flat celt, shouldered celt, bar celt and double axe. The important sites of this zone are Bargunda, Kausalya, Palamau, Manbhum, Hami, Tamajuri Kalgora, Mayurbhanj, Deneria, Bhagrapir etc.

Zone B includes the region of Uttar Pradesh and Haryana. The characteristics of weapons and implements are the anthropomorphs, antennae and harpoons etc. The prominent sites are Bithur, Fatehgarh, Bisoli Manpur, Bahadrabad,
Saharanpur, Sitapur, Hansi, Dadri, Rewari, Ambala, Jind, Bhiwani, Jhajjar etc.

**Zone C** comprises Rajasthan only flat celts and bar celts have been found. The important sites of this zone are Khurdi, Ganeshwar, Padaliya, Noh etc.

The PGW sites are confined to a geographical horizon which roughly comprises modern Punjab, Haryana, northern Rajasthan and Uttar Pradesh. This PGW zone is bounded by the Sutlej in the west, the formidable deserts in the south-west, and the Aravalli ranges in the south and the River Chambal in the south-east and in the north again the hilly tracts of the Himalayan ranges. It is only in the east that there are no natural barriers, unless we presume that in ancient time, the forest grew thicker as one proceeded eastwards. The important site of PGW found in this region are Manda, Sanghol, Dadheri, Sunet, Kathpalon, Nager, Ropar, Bara, Kotla Nihang Khan, Bhagwanpura, Mirzapur, Daultpur, Madina, Hatt, Sardargarh, Suneri, Jodhpur, Bairat, Noh, Atranjikhera, Hastinapur, Ahichchatra, Alamgirpura, Allahapur, Hulas, Jakhera, Beteswar, Sonkh, Kausambi, Sravasti, Kampil, Parior, Sringverpura, Abhaipur etc.

The Indus river system covers a region conventionally known as 'Saptasaindhava' and is drained by seven rivers. The Ganga river system covers a region which is divided into three major zones: the upper Gangetic plain, the middle Gangetic plain and the lower Gangetic plain. The Saptasaindhava is semi-arid whereas the Gangetic plains are moist. The region is densely populated due to its rich alluvium and high rainfall (about 100 cm). The average rainfall in Indus region is very less i.e. from 25 cm to 40 cm only.
The central highlands are relief features of India that comprise the northern part of Deccan Plateau. It is drained by two major rivers the Tapi and the Narmada. These rivers drained into Arabian Sea. The southern part central highland is covered with highly fertile black soil.\textsuperscript{2}

The southern part of India generally denotes the region lying south of the Krishna and includes the modern states of Karnataka, Andhara Pradesh, Tamil Nadu and Kerala. The common culture of these people is known as 'Dravadian'.

MINES AND SMELTING PROCESS IN PROTOHISTORIC PERIOD

The role of metals (copper and iron) is of great significant in the development of culture and civilization. In the protohistoric period copper and iron were massively used by the people. The Harappan people were unknown to the use of iron. No single evidence of iron has been found from any Harappan site. The Harappan people used copper and alloy metal (Bronze) to make weapons and implements.

People in Pre-Harappan phase imported copper ores from Bluchistan, Afghanistan, Rajasthan (Khetari) the evidences of furnaces are found from Mehargarh,\textsuperscript{3} Banawali,\textsuperscript{4} Siswal, Bhirrana, Dholavira\textsuperscript{5} etc. The evidences of slag and crucible of copper indicate the smelting process on these sites. It is considered that the use of copper has been started during Pre Harappan Phase.

The use of copper and bronze has increased during Harappan period. They obtained raw material from Baluchistan, Afghanistan, Jharkhand (Singhbhum), Rajasthan (Khetari). The tin was procured from Afghanistan, Hazaribagh (Bihar), Tosham Hills in Haryana. The tin and copper was used to make bronze.
This technology was developed during Harappan phase. The evidences of copper smelting (slags, ore, crucible, furnaces) have been found at Shortugai, Mohenjo-daro, Harappa, Allah-dino, Balakot, Lothal, Chanhudaro, Kuntasi, Banawali, Mitathal, Badli etc. Some evidences of weapon and implement like arrowheads, spearheads, axe, sickle, chisel, parasu, dagger, knife, razor, needle etc. have been found from these sites. The Harappan tools were also made up of chalcedony, quartzite and chert. The raw material for these stone tools was imported from Lakhi hill, Sukkur hill and Rohiri hill in Sindh in Pakistan.

The Late Harappan phase can be considered as the declining phase of Harappan Civilization. They knew the metallurgical technology of mature Harappan people. The evidence of imported raw materials from the adjoining region is not found from this phase. They used the scrap of metal to make new tools or implements. The evidence of copper objects are found from Diamabad, Ropar, Bara, Sanghol, Kotala Nihan Khan, Dadheri, Balu, Banawali, Daultpur, Mirzapur, Raja Karan Ka Tila, Mitathal, Bargon, Hulas, Lothal, Rangpur, Desalpur, Rojdi etc.

The copper hoard culture was flourished in India from 1700 B.C. to 1200 B.C. Most of the sites of this culture are concentrated in Ganga-Yamuna doab, Rajasthan, Gujarat, Madhya Pradesh, Bihar etc. The important copper hoards are found at Ambala, Bhiwani Dadri, Hansi, Mitathal, Narnaund, Rewari, Bahadarabad Baheria, Bisauli, Bithur, Fatehgarh, Hardoi, Kanpur, Nasirpur, Shahabad, Saipai, Sarthauli, Gunderia, Pondi, Hami, Kallur etc. People of copper hoard culture obtained raw copper from Khetari in Rajasthan. There is
high content of copper in the tools and implements of this culture.

The Painted Grey Ware culture flourished in mainly in Ganga-Yamuna doab. The important PGW sites are Sanghol, Dadheri, Ropar, Manda, Mirzapur, Daulatpur, Madina, Hastinapur, Alamgirpur, Jakhera, Sonkh, Ahichchhatra, Allahapur, Jodhpur etc. The PGW people developed the technique to make weapons, implements and other artifacts from iron. The PGW people procured iron ore from the mines in Bihar, Madhya Pradesh, Odisha, Maharashtra, Karnataka, Goa, Jammu and Kashmir, Mandi (Himachal Pradesh) Kumoan Hill (Uttarakhand), Narnaul (Haryana) and from North-eastern states of India.  

The evidences of iron smelting are found at Attranjikhera, Noh, Jodhpur etc. The finding of iron slags, lump, pit and ash in furnace indicate the smelting and manufacturing of iron objects.

WEAPONS AND IMPLEMENTS IN PRE HARAPPAN PHASE

In the pre harappan period people used weapon and implements made of copper, terracotta, bone and stone. The important weapons used by pre harappans are the arrowheads which were found in large number. These were made of copper, stone and bone. Dagger, parasu, macehead, spearhead, sling ball are reported comparatively less in number.

Agricultural implements: The agricultural implements were made up of copper, stone, terracotta. The major implements were axe, sickle, plough etc. Axe was common implement and used massively in agricultural activities. The stone sickle and terracotta plough were rarely used by the people in agriculture.
Various Crafts: The Pre-Harappan people used the tools of copper, stone and bone for various crafts. Some craft implements are awl, adze, borer, burin, chisel, drill, saw, scrapper etc. Awls\textsuperscript{11} are found in large number from various sites. It indicates that they were multipurpose tools and used at large scale.

Household Implements: The household implements include blade, fishhook, hook, knife, needle, point, razor etc. Copper, bone and stone were used to make these implements. The stone blade and bone points were used at large scale by the people in this phase.

MATURE HARAPPAN PHASE

Copper, bronze, stone, bone and terracotta were used to make weapons in Mature Harappan phase. The important weapons include arrowhead, spearhead, dagger, \textit{parasu}, lancehead, macehead, sword, antennae sword, missile etc. The copper arrowhead, spearhead were used frequently by the people in this phase. Stone and terracotta missile were also used at large scale.

Agricultural Implements: The agricultural implements include axe, sickle, celt, hoe and ploughshare. These were made up of copper bronze and stone. The evidences of axe were found at many sites indicates that axe was used at large scale.

Various crafts implements: Among various implements used for different crafts were a lot of chisel, adze, saw, awl, drill,\textsuperscript{12} bead tool, scissors, borer, burin, chopper, spindle, whorls, plumb bob, hammer and gouge. These tools were made up of copper, bronze and stones. Chisel and drill were used at large scale by the people.
Household Implements: Household implements include knife, needle, fishhook, razor, blade, hook, point, scraper etc. They were made of copper, bronze, bone, ivory, stone and horn. These were found in large number at different sites. These were common in this phase and used in household activities.

LATE HARAPPAN PHASE

Weapon: The declining phase of Harappan civilization is known as Late Harappan. The weapons were found less in number as compared to Mature Harappan phase. The important weapons recovered from Late Harappan sites were arrowhead, spearhead, parasu, dagger, mace head, harpoon, sling ball etc. These were made of copper, stone, terracotta and ivory.

Agricultural Implements: The agricultural implements are axe, celt, bar celt or chisel etc. These implements are found rarely from these sites.

Various crafts: Chisel, awl, borer, hammer can be included in the tools of various crafts. These tools were made of copper, stone and bones.

Household Implements: The household implements found at different Late Harappan sites. These implements include razor, knife, needle, fishhook, blade, point and hook. These were made of copper, bronze, stone and bone.

COPPER HOARD PHASE

Weapons: The weapons in copper hoard culture include arrowhead, sword, antennae sword, hooked sword, simple sword, spearhead, lance head, harpoon, parasu or hatchet, disc, double axe. These weapons were purely made of copper.

Agricultural Implements: Flat axe, shouldered axe, lugged shouldered axe, splayed axe, socketed axe, bar-adze or bar celt, plough share or picker, weed chisel or khurpi, chisel
were included in agricultural implements. These implements indicate the development of agricultural activities.

**Household Implements:** Knife, razor, anthropomorph, ring, saw were reported from different area of India. The anthropomorphs were used for ritual as well as hunting weapon.

**PAINTED GREY WARE PHASE**

The weapons used in PGW culture include arrowhead, spearhead, dagger, shaft, hilt, sling ball, etc. These weapons were made of iron, copper, stone, bone and terracotta. The copper weapons are found less in number. The copper was replaced by iron during this phase. Iron was hard and cheap metal. So the iron was used at large scale in manufacturing the weapons and implements.

**Agricultural Implements:** Axe, sickle, plough share and hoe etc. were used as agricultural implements during this phase. These were made of copper and iron.

**Various Crafts Implements:** The people in PGW culture were aware of different crafts. They used chisel, borer, needle, clamp, tong, awl, spindle whorl, bit, adze etc. These tools were made of iron, copper, bone and terracotta.

**Household Implements:** Different implements were used for household work. These implements were knife, antimony rod, kohl stick, antimony rod-cum-parer, chopper, nail, spike, nail parer, bar and rod, fishhook, simple hook, spatula, points, pin, antler, stone grinder etc. These artifacts were made up of iron, copper, ivory and stone.

**TECHNOLOGY**

The Indus people procured copper from mines of Khetri (Rajasthan) and Singhbhum (Jharkhand). Metal smelters of this
age used two types of technique for making weapons and implements- mould casting and cutting metal sheets.\textsuperscript{15}

Eight to twelve percent tin was mixed with copper to make the tools of bronze.\textsuperscript{16} Metal smiths were aware of the technique of smelting metal into mould and afterwards to strike it firmly with hammer to provide proper shape to implements and they were also aware of lost wax process. The knives, arrows and other thin weapons and implements were made by cutting metal sheets.\textsuperscript{17} They had also the knowledge of the technique of jointing metal sheet with mixture of bronze.\textsuperscript{18} The Indus people made rivet hole into the tang of weapons and fitted into wooden shaft or handle.

Copper hoard weapons and implements were made of pure copper. These were made by casting in open or closed moulds or by cutting metal sheets.\textsuperscript{19} Some techniques of copper hoard people match with the techniques of the Indus people.

The people of Painted Grey Ware got iron ore from the mines of Loha Mandi (Himachal Pradesh), Patiala (Punjab), Kumaun (Uttarakhand).\textsuperscript{20} Metal workers of this age melted iron at the temperature of 800°C to 1540°C and cast into mould to make weapons and implements. Metal was spread to make the tools through heating and hammering; afterwards it was dropped into water to make it strong. They were well acquainted with all these processes.

In the Indian protohistoric cultures weapons and implements have played an important role in war, hunting, agriculture, trade, industry and in the development of technology. Metallurgy of these cultures has paved the way for the further development in the later phases. Even we can say, today we are making progress; its credit goes to the science and
technology in the protohistoric cultures. These cultures nurtured technical progress in their lap for hundreds of years.

**REVIEW OF PREVIOUS WORK**

The present research work deals with the study of weapons and implements in protohistoric India. So far, many scholars and archaeologists have conducted researches on weapons and implements in ancient India.

G.N. Pant analyzed weapon and implements in his work "Studies in Indian Weapon and Warfare", (1970) and "Indian Arms and Armour", (1978). He conducted a detailed study of weapons and implement from Prehistoric to medieval period of India. His work is quite significant for research scholars. However, his work on protohistoric weapons and implements is limited up to metallic weapons only.

Dilip Kumar Chakrabarti and Nayanjot Lahiri have worked on weapons and implements of ancient India in their book "Copper and its Alloys is Ancient India" (1996). They gave description of metallurgical details and making of alloy in ancient India. They also have given a descriptive analysis of weapons and implements.

Jagdamba Prasad Upadhaya has worked on the metallic implement in ancient India under title "Metal Implements in Ancient India (From earliest times up to circa 2nd century B.C.)" (2000). He explains the weapons and implements of Protohistoric period of India. He has conducted his research with the classification of weapons and implements into different category.

The foreign scholar Paul Yule conducted a research under title "Metalwork of the Bronze Age in India" (1985). He analyzed the weapons and implements of copper hoard culture with
functions and features. His work signifies the idea of metallurgy.

Deo Prakash Sharma explain the weapon of copper hoard culture under title "Newly Discovered Copper Hoard, Weapons of South Asia (c. 2800-1500 B.C.). He gave detail of copper hoard collection in National Museum, New Delhi. His work proved very fruitful for the scholars due to description of weapons with photographs.

The previous work of the scholars is very much helpful in understanding the detail of weapons and implements of ancient India. They explain the weapons and implements in detail but most of the scholars were confined to metallic weapons and implements. They did not pay much attention towards the weapons and implements of stone, bone and terracotta. Hence it has been covered under the present work. An effort has been made to encapsulate analysis of metallic, stone, bone, horn and terracotta weapons and implements of protohistoric period in the thesis. The present work focuses on the case study of Haryana and Punjab. The data from newly excavated sites, published and unpublished materials have also been incorporated in this research work.

**Aims and Objectives of the Research Work:**

- The researcher carried out extensive exploration in the entire study area of the present research work.
- To understand the origin and development of the metallurgy.
- To understand the period-wise origin and evolution of weapons and implements.
- To understand the different uses of weapons and implements.
To know the contribution of implements in the development of agriculture, crafts and trade.

To know the contribution of weapons and implements in social formation.

To know the status of soldiers and the defense purpose of weapons.

To know the nature of people of contemporary period in case of war and battle.

To understand the use of implements in household work.

To know the metallurgical technique of the contemporary period.

To find out the sources of raw material used in the making of weapons and implements.

To make the classification of weapon and implements in different categories.

To classify of weapon and implements on the basis of material used like, metal, stone, bone, horn terracotta, ivory etc.

To compare the weapons and implements of Haryana and Punjab with rest of the protohistoric cultures of India.

**METHODOLOGY**

The study of present work focuses on weapons and implements of protohistoric India. In the present research work an exhaustive study of weapons and implements from different archaeological sites in Haryana and Punjab in their proper historical perspective has been conducted. The researcher visited a very number of archaeological sites, museums, libraries for data collection. The data from published and unpublished materials and the dissertation of many scholars has also been encapsulated. An effort has been made to analyze
the features of weapons and implements with proper measurement, shape, types, category, site-wise, material-wise, and the uses. Digital camera has been used to take photographs of good quality. Maps of different phases of protohistoric culture have been incorporated to make the interpretation more understandable.

**CONSTRAINTS**

The researcher faced some problems while proceeding the present research work. Some sites revealed some important specimen of weapons and implements but due to unpublished report the researcher is not able to get proper information of such objects. Some scholars did not give complete information, measurement and size of weapons and implements. The Iron objects lost their proper size and measurement due to corrosion. Sometimes the researcher was not allowed to take the photograph of some objects of the museum. Many sites have been excavated so far, but the reports of those sites are still awaited.
References: