

Course Contents

	Pages
Course Introduction	7
UNIT 1 Sources of Ancient Indian History	11
UNIT 2 Archaeology as a Source and Prominent Archaeological Sites	39
UNIT 3 Indian History: Physical Features, Formations and Characteristics	62
UNIT 4 Hunter-Gatherers: Archaeological Perspective, Origin of Agriculture and Domestication of Animals	91
UNIT 5 Harappan Civilization: Chronology, Geographical Spread, Diffusion and Decline	123
UNIT 6 Harappan Civilization: Material Characteristics, Nature of Contacts, Society and Religion	148
UNIT 7 Chalcolithic and Early Iron Age	184
UNIT 8 The Early Vedic Society	227
UNIT 9 Changes in the Later Vedic Phase	242
UNIT 10 <i>Janapadas</i> and <i>Mahajanapadas</i> : Rise of Urban Centres, Society and Economy	256
UNIT 11 Buddhism, Jainism and other Religious Ideas	295
UNIT 12 Alexander's Invasion	313
UNIT 13 Establishment of Mauryan Rule and Magadhan Territorial Expansion	324
UNIT 14 Administrative Organization, Economy and Society	344
UNIT 15 Early State Formation in Deccan and <i>Tamilaham</i>	376
UNIT 16 Agrarian Settlements, Agrarian Society, Expansion of Trade and Urban Centres – Peninsular India	392
UNIT 17 Growth of Tamil Language and Literature	422

Guidelines for Study of the Course

In this Course we have followed a uniform pattern for presenting the learning material. This starts with an Introduction to the Course underlining the significant developments in a chronological order and covers 17 Units. For the convenience of study all the Units have been presented with a uniform structure. Objectives as the first section of the Unit have been included to help you find what you are expected to learn from the study of the Unit. Please go through these objectives carefully and keep reflecting and checking them after studying a few sections of the Unit. Introduction of the Unit introduces you to the subject areas covered and guides you to the way the subject-matter is presented. These are followed by the main subject area discussed through Sections and Sub-Sections for ease of comprehension. In between the text some Self-Check Exercises have been provided. We advise you to attempt these as and when you reach them. These will help you assess your study and test your comprehension of the subject studied. Compare your answers with the Answer Guidelines provided after the Summary. The Key Words and unfamiliar terms have been explained subsequently. At the end of each Unit under Suggested Readings we have also provided a list of books or articles as references. These include the sources which are useful or have been consulted for developing the material for the concerned Unit. You should try to study them; they will help you in understanding and learning the subject matter in an all-inclusive manner.

COURSE INTRODUCTION

The discipline of history is a changed field today. The historians have gone beyond studying and writing about kings, their kingdoms and personal achievements. They are moving towards new areas of enquiry and investigation and raising questions pertaining to various aspects and dimensions of society like how did it evolve and what changes took place? A large amount of new data has come to light in the past three decades, leading to fresh interpretations and perspectives in many cases. An attempt has been made in the present Course **BHIC-131: History of India from the Earliest Times up to c. 300 CE** to incorporate such aspects while retaining the earlier arguments wherever valid. The chronological span of this Course closes before the Gupta period.

There can be alternative interpretations of the past. It is the historians' duty to recognize with due humility that the information which has been handed down from generation to generation is not static. They should be able to explain historical situations and such explanations should draw on analysis of the evidence and derive from logic of the argument. New sources of evidence such as archaeology are important to study in order to arrive at a more nuanced understanding of the past. The purpose of this Course is to introduce to you and familiarize you with the stages in the way the history of India has unfolded from earliest times till c. 300 CE. It not only introduces the student to new ways of looking at the existing evidence but also attempts at explaining the past human activities and their interconnections. Thus, the changes in society, economy, polity, religion, technology etc. from the earliest times till c. 300 CE have become the focus of this course.

The Course is divided into **17 Units**, each taking up a major topic, theme or development which is considered significant during the aforementioned period. The emphasis is on the transitions from one phase to another, specificities of various cultures and civilizations, evolution of regional patterns etc.

Unit 1 deals with the sources of ancient Indian history, because before we get to what happened in the past it is imperative to know about the sources on the basis of which we "re-construct" our past. Archaeology is an important source, particularly for the periods for which there are no written documents. Sometimes its purpose is to corroborate written evidence and where it does not it provides an alternative view. It is also argued that inscriptions and literary texts mostly represent voice of the elite – kings, *Brahmanas*, court-poets etc. Hence, sometimes the archaeological sources are deemed more reliable and authentic as they may voice the sentiments of what the common folks felt, saw and lived. With the aid of a historian's interpretations it becomes possible to deal with complications that arise from the nature of archaeological and literary evidence. There cannot be a one-to-one corroboration since archaeological data substantially is in the form of artefacts (material remains left by humans) whereas the textual records are more abstract.

Unit 2 discusses the nature of archaeology as a source, the sophisticated methods of excavation and exploration and how techniques from the scientific disciplines are being used in the analyses of archaeological data. They enable us in dating the evidence and understanding past human behaviour, settlements, production processes and past technologies, trade and exchange, subsistence and diet and aspects of social life such as status, religion, rituals and so on. Issues like how the archaeological sites are formed, methods of fieldwork and data collection as well as an elucidation of some of the major excavated sites of the Indian subcontinent of the period delineated by this Course have been dealt with.

Geography and its impact on the unfolding of historical processes are the concern of **Unit 3**, as for the study of the history of a country an understanding of its physical features and how it determined and influenced the birth and evolution of human cultures and civilizations are absolutely necessary. Such parameters as settlement patterns, population density and trade, formations of regions have been given due importance. Environmental settings change and how such changes affect historical evolution is a worthy subject of study. Uneven pattern of growth, both between and within macro-regions, may be explained on the basis of the availability or non-availability of resource potentialities and the form and extent of human and technological intervention.

With **Unit 4** we begin tracing Indian history with the pre-historic Hunter-Gatherers. An attempt is made to make you understand the various ways to reconstruct their history; about their subsistence-pattern, the kinds of tools they used, their art such as the cave-paintings which throws light on many aspects of their lives etc. It also deals with the advent of agriculture and cultivation of crops, beginnings of the domestication of animals, beginnings of village settlements, introduction of metals and manufacturing of new types of tools, use of pottery etc.

Unit 5 and **6** offer a detailed study of the Harappan civilization: its discovery, chronology, geographical extent and climatic aspects of the settlement patterns, diffusion and decline, chief sites and material remains which characterized them, uniformities in the material features of these sites, nature of contacts with the outside world, trade and exchange networks, society and subsistence related characteristics, main occupations, nature of ruling classes, dress and food-habits, script and language, religious practices, modes of burial, problems faced by the scholars to understand its decline and the theories put forward by them for the same etc. Though many students are familiar with this civilization we have emphasized how important it was in Indian history by looking at its art and architecture, drainage system, transition from early Harappan to mature Harappan, evidence of its survival and continuities post its decline etc.

Unit 7 discusses Chalcolithic and Iron age cultures: the various post-Harappan pottery-making cultures that can be clubbed and classified differently as pre-Iron (such as Ochre Coloured Pottery culture) and Iron age cultures (such as Painted Grey Ware culture and Northern Black Polished Ware culture). Iron ushered in the PGW phase and was later associated with the 6th century BCE urban phase in north India. The Unit also deals with the early farming communities and the subsequent Iron age in south India with special reference to the Megalithic burials and their various aspects. The interplay of locality and region that underlines some of the Chalcolithic settlements becomes an important feature of the later historical change.

Units 8 and **9** throw light on the Vedic period. For the first time we have texts such as the Vedic corpus which can be studied to cull crucial information on polity, economy, society, religion etc. of the Vedic era. The economy was mainly pastoral; agriculture assuming secondary importance. Society was tribal and basically egalitarian. Clan and kinship relations formed its basis. One must remember that between c. 1500-1000 BCE the society was constantly evolving and newer elements in the economic, social, political and religious sphere were operating to transform its structure.

The later Vedic period encapsulated changes which can be seen in the position of *rāja*, emergence of well-defined political units, stratification of society, new religious trends etc. By mid-1st millennium BCE the society was changing from a pastoral nomadic lifestyle evidenced in the *Rigveda* to a settled agricultural society, but iron was yet to play an important role in agriculture. Both literary and archaeological sources have to be interpreted together to get an overall picture of the period.

Sixth century BCE (dealt with in **Unit 10**) witnessed the shift to the establishment of kingdoms, oligarchies and chiefdoms in north India for the first time in Indian history. The changes in polity were accompanied by urbanization and the transition to kingdoms was a pronounced departure in the formation of state. The *Mahajanapadas* which emerged as regions where new kinds of socio-political developments were taking place were located in distinct geographical zones; several of them situated in middle Gangetic valley which was a rice growing area, whose output exceeded the production of wheat and which, thus, supported a greater density of population. A *Mahajanapada* like Magadha also had easy access to crucial resources like the metal ores which may be related to the emergence of middle Gangetic valley as the focus of politico-economic power. The fact that so many *Mahajanapadas* were contiguous to each other in this geographical zone meant that an ambitious leader could try and conquer the prosperous neighbouring territories, retain control over them and consolidate his power. No wonder, Magadha emerged as the most powerful kingdom in the subsequent period.

Unit 11 gives the background to the emergence of new religious ideas during c. 6th century BCE in north India. The contestation between established Brahmanical orthodoxy and social unrest resulting from the same intensified, giving rise to parallel religious movements/systems like Buddhism and Jainism, *Ajivikas* etc. They posed a direct challenge to the existing Vedic religion. The Unit also underlines their significance and their influence on contemporary society. They brought about a significant change in the attitude of people who now began to question the age-long supremacy of Brahmanical religion.

Meanwhile, the north-western part of the Indian subcontinent, which attracted the attention of invaders quite early in Indian history, witnessed Achaemenid ascendancy which ended with the conquest by Alexander of Macedon in 330 BCE. His invasion of India in 327 BCE marked an important phase which opened the north-west to Greek influence (subject-matter of **Unit 12**). You will know that Arrian's accounts are the main source of Alexander's campaigns. He has left in his *Indike* some factual, some fanciful account of India which is based on the accounts of other travellers.

Units 13 and 14 focus on another benchmark of early Indian history – the Mauryas. We outline the territorial expansion of the kingdom of Magadha which will provide an understanding of how and why it was possible for Magadha to become an “empire”. Then, the origin and dynastic history of the Mauryas have been discussed. Constituents of the state, the vast administrative apparatus and its elaborate mechanism of administration comprising various tiers have been highlighted. Different types of sources are correlated to understand the nature of Mauryan state. The *Arthashastra* underscores essential matters pertaining to governance, Ashokan inscriptions reveal the royal proclamations of Ashoka and Megasthenes' account envisions workings of the state and society in the court of Chandragupta Maurya. Social and economic processes of the earlier period continued and expanded in this period. Royal policies that appeared to consolidate and weave the vast heterogeneous empire in one thread are discussed.

The establishment of first political empire by Chandragupta Maurya who succeeded the Nanda throne ushered in a new age. Ashoka and his *Dhamma*, his edicts, his welfare policies, his imperial ideology became the hallmarks of this period. **Unit 14** also highlights the emergence of different types of principalities such as Shungas and Kanvas, the Indo-Greeks, the Shakas and Pahlavas and Kushanas in the north-west and north; tribal polities like Yaudheyas and Arjunayanas in the Indo-Gangetic divide; the process of state formation in Odisha and Deccan i.e. during the Satavahanas and the economy and society of post-Mauryan period which can be characterized as the period of diverse and dynamic polities.

The emergence of Satavahana dynasty which founded the earliest state in Deccan and the state-formation in south India (*Tamilaham/Tamilakam*) becomes the theme of **Unit 15**. *Tamilaham* constituted various eco-zones (*Tinais*). You will know about their subsistence-pattern, the basis of clan ties and kinship in the political authority, different levels of political control and various details of the chiefdom-resembling political formation. Expansion of overland and maritime trade networks provided additional revenues to the rulers and also resulted in the prosperity of a large number of towns and cities throughout the Deccan in this period. Consequently, **Unit 16** discusses the spread of agrarian settlements in Deccan and south India from c. 200 BCE to 300 CE, different forms of subsistence prevalent in different parts of south India, nature of the ownership of land, revenue income from agriculture and redistribution of resources in agrarian settlements, organization of agrarian society, introduction of new elements and beginnings of change. The purpose of this Unit is also to throw light on different dimensions of the expansion of trade and urban centres during the aforementioned period with special emphasis on the nature of exchange which determined the character of trade at various levels in early peninsular and south India. It focuses on the kingdom of the Satavahanas and the regions far south under Cheras, Cholas and Pandyas as well as the less important local chieftains.

After reading the last Unit – **Unit 17** – you will know about the antiquity of Tamil language and literature, Tamil heroic poems and their main features, techniques of their composition and their classification and codification into anthologies, problems of their dating, their literary merits and other compositions of the period between c. 2nd century BCE-3rd century CE known as the *Sangam* period. Another point you will be acquainted with is the level of literary and linguistic development of classical Tamil.

UNIT 1 SOURCES OF ANCIENT INDIAN HISTORY*

Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Literary Sources
 - 1.2.1 Vedic Literature
 - 1.2.2 Kautilya's *Arthashastra*
 - 1.2.3 Epics
 - 1.2.4 *Puranas*
 - 1.2.5 *Sangam* Literature
 - 1.2.6 Biographies, Poetry and Drama
 - 1.2.7 Buddhist and Jain literature
- 1.3 Archaeological Sources
 - 1.3.1 Coins
 - 1.3.2 Inscriptions
 - 1.3.3 Monuments
- 1.4 Foreigners' Accounts
- 1.5 Summary
- 1.6 Key Words
- 1.7 Answers to Check Your Progress Exercises
- 1.8 Suggested Readings

1.0 OBJECTIVES

After reading this Unit, you should be able to understand and explain:

- the different types of sources for the reconstruction of ancient Indian history;
- the problems associated with the use of literary sources;
- the difference between primary and secondary sources;
- different types of religious and non-religious texts and their utility for a historian;
- why the archaeological sources are more reliable than literary sources in the Indian context; and
- historical consciousness in early India and the sense of history among Indians.

1.1 INTRODUCTION

Writing of history is not like writing a story. It is a narration of the past based on a variety of sources. The many types of sources today are aided by various modern

* Dr. Suchi Dayal, Academic Consultant, Faculty of History, School of Social Sciences, IGNOU, New Delhi and Dr. Milisa Srivastava, Academic Consultant, School of Tourism, Hospitality and Services Management, IGNOU, New Delhi.

scientific techniques like Absolute dating methods (Carbon-14 dating), environmental studies, geological analysis etc. that provide a scientific basis to verify/correlate various sources. Even in the case of myths the recent discoveries have helped to authenticate their veracity. For example, in the case of the ancient city of Dwarka it was believed that it was a myth mentioned in the *Mahabharata*. However, recent underwater salvage archaeologists have unearthed the remains of a submerged city which seems to be ancient Dwarka. Similarly, in the case of Sanauli, a recently excavated archaeological site in the Baghpat district of western Uttar Pradesh the discovery of ‘chariot’ remains bring out new dimensions to the archaeology of *Mahabharata*. Of course, the findings are still being established and await further study. What is important to realize here is that archaeology has been adding up to our knowledge of the past and what was till now considered uncharted territory is now being subjected to scientific analysis.

The sources are an important part of writing history. It is on the basis of sources that we reconstruct our past. The praxis of history requires a historian to study and interpret them in detail. The historians continuously work on unraveling the past by discovering, investigating, exploring, analyzing, considering and reconsidering the sources. Any remnant of the past can serve the purpose of a source.

We have a variety of sources for reconstructing the history of ancient India. Broadly, they can be classified under two main categories:

- i) Literary
- ii) Archaeological

Under the literary sources can be included the Vedic, Buddhist and Jain literature, the Epics, *Puranas*, *Sangam* literature, ancient biographies, poetry and drama. Under the broad head of Archaeology we may consider epigraphic, numismatic and architectural/archaeological remains that are recovered as the result of archaeological explorations and excavations.

In Indian history there is a primacy accorded to the written records. However, archaeological artifacts in the form of temple remains, coins, house remains, post holes, pottery, silos etc. also constitute an important category of evidence. For all the three periods of Indian history – ancient, medieval and modern – the archaeological evidence has acquired a lot of significance. It is indispensable for those periods which did not have any writing; for example, the prehistoric and proto-historic period of Indian history.

The sources can also be divided into primary and secondary. All archaeological artifacts recovered from the earth or written documents in the form of temple records; *talapatra* (palm-leaf manuscripts); inscriptions on palm leaves, pillars, rocks copper plates, pot sherds etc. together constitute what are called the **primary** sources. These are used by the historians to write articles, books or any form of written history which are used by the subsequent researchers and are, hence, called the **secondary** sources.

The written primary sources are of two kinds:

- i) Manuscript sources/ Inscriptions
- ii) Published material.

1.2 LITERARY SOURCES

Certain questions have to be kept in mind while studying the ancient Indian texts. For example, why were they composed and for whom? What was their social and cultural

context? A text may represent an ideal and may not be an accurate description of what was happening at that time. There are some crucial aspects which need to be taken care of when one is studying the ancient Indian texts for historical information. Upinder Singh has pointed out that if a text was composed at a specific period its use as a historical source is less problematic. However, the exercise becomes much more complex if its composition extends over a long period of time. For example, in the case of the epic *Mahabharata* it is difficult to bracket it as a single text composed at a specific point of time. In such cases the historian has to sift through various chronological layers and look critically into the various additions and interpolations. The language, style and content of a text have to be analyzed. In the case of both the epics – the *Ramayana* and the *Mahabharata* – critical editions have been made where different manuscripts of these texts have been analyzed and an attempt has been made to identify their original core. Such undertakings have helped historians immensely.

There has also been much debate about the reliability of ancient Indian literature for reconstructing history. Since most of the ancient Indian literature is religious in nature; for example, the Vedic, post-Vedic, Puranic and Epic literature; some scholars have claimed that the ancient Indians did not possess a sense of history. What these early western scholars were looking for was chronology, evidence, a clean narrative and dates in the Indian texts. What they found instead were fables, rituals, prayers etc. However, recent research into the historical traditions of India has made it clear that different societies embody historical consciousness in different ways. Ancient India possessed a strong oral tradition as opposed to a written tradition. The historical consciousness that we glimpse was of an embedded type which has to be prised open for analysis.

We come to know from the writings of Hiuen Tsang, the Chinese pilgrim, that each kingdom of India had its own officials and departments for the maintenance of official records which kept the records of various aspects of the kingdom including important events. This practice seemed to have continued for a long time after him as can be seen in a large number of land-grants and local chronicles which record the genealogies of the kings and their several virtuous deeds.

Since most of the early Indian literature contains much that deals with religion, theology, cosmology, cosmogony, magic, rituals, prayers and mythology there are problems associated with dating these texts. This is because their period of composition and compilation differ by a wide margin. As their subject matter is theology or religion it is difficult to understand them historically. The *Vedas*, *Upanishads*, *Brahmanas*, *Shastras* literature, *Sutras*, *Puranas* etc. deal broadly with non-secular themes. However, despite these limitations such texts have been fruitfully used to arrive at an understanding of the past.

We will now be studying these different categories of ancient Indian literature as the sources of Indian history.

1.2.1 Vedic Literature

The earliest known literature from the Indian subcontinent is the Vedic literature. The word *veda* is derived from the Sanskrit root ‘*vid*’ which means ‘to know’. *Veda* means knowledge. They are oral literature par excellence. They are traditionally regarded as *Shruti* i.e. ‘heard’ or revealed texts: words said to have been uttered by the god Brahma in the ears of the First Man. They were handed down from one generation to the next with emphasis on accurate memorization. Vedic literature is in a language different from the classical Sanskrit. It can be called the Vedic Sanskrit. Its vocabulary contains a

wide range of meanings and has different grammatical usages. It has a definite mode of pronunciation in which the emphasis changes the meaning entirely. This is the reason why an elaborate means to protect and preserve the mode of pronunciation of the *Vedas* was devised. By the means of *Ghana*, *Jata* and other types of *pathas* we can not only determine the meaning of the *mantras* but also can hear the original tone in which these were sung thousands of years ago. It is on account of these *pathas* that no interpolations in the *Vedas* were possible, as the emphasis was on oral transmission.

The Vedic literature consists of three different classes of literary works:

- a) The *Samhitas* or collections, namely the collections of hymns, prayers, incantations, benedictions, sacrificial formulas and litanies. The following four Vedic *Samhitas* are known to us:
 - 1) *Rigveda Samhita*: The collection of the *Rigveda*. It is the knowledge of the songs of praise (*rik*) and consists of 1028 hymns (*suktas*) constituting 10 books (*mandalas*). Books 2-7 are of an earlier date and books 1, 8, 9, and 10 are later. They deal with a variety of issues related to the customs, social norms and formations. Despite the ritual content of the *Rigveda* the historians have been able to successfully build on themes like the pastoral economy, the position of the clan-chief (*raja*), the status of *vish*, meanings of terms like *bhaga* and *bali*, social classes etc.
 - 2) *Atharvaveda Samhita*: It encompasses a range of topics over its 20 books of which the first seven primarily deal with incantations, poems, spells and charms to be spoken by the one seeking some benefit or more often by the one who would pronounce them on their behalf for all sorts of healings to cure various illnesses, ailments and injuries. Books 13-18 throw light on the rites of passage like those for initiation into learning (*upanayana*), marriage and funerals. Royal rituals and the duties of the court-priests are also incorporated. Thus, its contents are studied to obtain information on the social and cultural mores of the Vedic period. A significant section also talks about herbs and nature-derived potions as medicine.
 - 3) *Samveda Samhita*: The collection of the *Samveda* i.e. the knowledge of the songs or melodies (*saman*). The Indian classical music has its roots in the *Samveda*'s sonic and musical dimensions in general and the structure and theory of chants in particular. It is also sometimes referred to as the musical version of the *Rigveda* because barring the musical creativity and melodic novelty reflected in the 75 verses the rest have been borrowed from the *Rigveda*. It also mentions instruments like *Vina* (lute). The rules and suggestions for playing various instruments are encoded in a separate compilation known as the *Gandharva-Veda* which is an *Upaveda*: a supplement or appendix to the *Samaveda*.
 - 4) *Yajurveda Samhita*: The collection of the *Yajurveda* i.e. the knowledge of the sacrificial formulas (*yajus*) for worship-rituals like *Agnihotra* (welcoming the three primary seasons – Spring, Monsoon and Autumn – by offering butter and milk to fire), *Vajapeya* and *Rajasuya* (on victory of a king and his coronation respectively by offering butter and *Sura* – an alcoholic drink – to fire), *Agnichayana* (uttering incantations for building altars and hearths, largest in the shape of an outspread eagle or falcon, dedicated to the fire-god *Agni*) and so on. It also yields crucial information on agriculture, economic and social life. For instance, a significant

¹ The *Yajurveda* is divided into the “white” or “bright” (*Shukla*) *Yajurveda* and the “black” or “dark” (*Krishna*) *Yajurveda*. The former denotes the well arranged and clear verses whereas the latter refer to the unarranged, unclear, mingled hymns.

verse in the *Shukla Yajurveda*¹ lists the crops deemed important in those times such as wheat, rice, barley, sesame, millets, sorghum, kidney-beans etc. It is the largest collection of primary *Upanishads* – the *Brihadaranyaka Upanishad*, the *Katha Upanishad*, the *Isha Upanishad*, the *Maitri Upanishad*, the *Taittiriya Upanishad* and the *Shvetashvatara Upanishad* – out of which the various schools of Hindu philosophy have emerged and developed. For example, the *Brihadaranyaka Upanishad* contains the earliest extensive discussions on the Hindu concept of *dharma*, *karma* and *moksha* (literally it means liberation from the vicious cycle of life and death but it is also taken to signify emancipation from sorrow, freedom or self-realization).

Six *vedangas* (limbs of the *Vedas*) were evolved for a proper understanding of the *Vedas*. These are:

- i) *Siksha* (phonetics),
- ii) *Kalpa* (rituals),
- iii) *Vyakarana* (grammar),
- iv) *Nirukta* (etymology),
- v) *Chhanda* (metrics), and
- vi) *Jyotish* (astronomy).

Each *vedanga* has developed a credible literature around it which is in the *sutra* form i.e. precepts. This is a very precise and exact form of expression in prose which was developed by the ancient Indians. Panini's *Ashtadhyayi* – a book on grammar in eight chapters – is the final culmination of this excellent art of writing in *sutras* (precepts) in which every chapter is so precisely interwoven.

Besides the *Vedas*, texts like the *Brahmanas*, the *Aranyakas* and the *Upanishads* are also included in the Vedic literature and are known as the later Vedic literature. The *Brahmanas* elaborate on Vedic rituals, and the *Aranyakas* and *Upanishads* give discourses on different spiritual and philosophical problems.

- b) *Brahmanas*: These are voluminous prose texts which contain theological matter, especially the observations on sacrifice and the practical or mystical significance of sacrificial rites and ceremonies.
- c) *Aranyakas* and *Upanishads*: The *Aranyakas* represent the etymologies, identifications, discussions, descriptions and interpretations associated with the ritual-sacrifices of the *Vedas* so that they can be properly performed. For example, the *Aitareya Aranyaka* contains specific statements on how one who follows the Vedic prescriptions and performs the sacrifices correctly goes to the abode of gods while the one who violates them is born into the lower worlds of existence as reptiles, insects etc. The 1st chapter of the *Taittriya Aranyaka* is famously called the “*Surya Namaskar*” which was later elaborated in the *Yoga-sutras*. Additionally, the *Aranyakas* also offer an insight into the deep philosophies of life. The word *Aranya* means forest or wilderness. It is believed and held by some that they were meant to be studied in a forest in the *Vanaprastha* (retired to forest/forest-dwelling) stage of life, hence the name *Aranyaka*.

The term *Upanishad* is formed by the joining and the combination of roots *upa* meaning “by” and *ni-shad* meaning “to sit down”. It, thus, denotes “sitting down near”, implying a pupil sitting near the preceptor, receiving the pearls of

spiritual wisdom. Other connotations include “esoteric doctrine”, “secret doctrine”, “mystic meaning”, “hidden connections” etc. Monier-Williams in his *Sanskrit Dictionary* defines it as “setting to rest ignorance by revealing the knowledge of the supreme spirit”. The *Upanishads* comprise some of the key philosophical aphorisms of Hinduism – such as the *Brahman* (highest entity or ultimate reality) and the *Atman* (soul or self) – some of which are mentioned also in the parallel heterodox religious traditions like Buddhism and Jainism. They played a momentous part in the evolution of spiritual ideas in ancient India; embodying and signifying a transition from the Vedic ritualism to new convictions on abstract philosophy and spirituality. They are synonymously known as *Vedanta*: the last parts or chapters of the *Vedas* and also stand for “the highest purpose of the *Vedas*”. With their translation in the early 19th century they also began attracting the attention and impression of a western audience. Fascinated by their philosophical tenets Arthur Schopenhauer called the Upanishadic theosophy “the production of the highest human wisdom”.

The *Aranyakas* are recognized as the *karma-kanda*: ritualistic action or the sacrifice-section of the Vedic literature on external sacrificial rituals, whereas the *Upanishads* are acknowledged as the *gyaan-kanda*: knowledge production or the spirituality-section of the Vedic literature on internalized philosophical doctrines.

Vasudhaiva Kutumbakam meaning in Sanskrit “the world is one family” is inscribed on the entrance-hall of the Parliament of India and has been taken from the *Maha Upanishad*. “Vasudha” connotes the earth, “eva” denotes indeed and “kutumbakam” implies family. It has been used in the verse which describes the characteristics of a person who has achieved the highest level of spiritual upliftment and who is capable of attending to his worldly duties without clamping on to material possessions and temptations. It is believed that Gandhi’s vision of holistic development, respect for all forms of life and the conflict resolution strategy based on non-violence was derived from this ancient Indian dictum.

Atithi Devo Bhava, a *mantra* representing the dynamics of the guest-host relationship in the Indian value-system, literally meaning “the guest is god”, is a central idea showcasing Indian hospitality. It is taken from the *Taittiriya Upanishad*. The worship of one’s deity in traditional Hinduism involved five steps (*Panchopchara Puja*) which are also the five formalities deemed to be observed while receiving guests: providing pleasant fragrance (*Dhoop*), lighting a lamp (*Dipa*), offering edibles (*Naivedya*), smearing *Tilak* (religious mark on the forehead) and flower (*Pushp*) offering.

Satyamev Jayate, variously translated as “truth alone triumphs”/“truth alone conquers”/“truth stands invincible”/“the truth prevails”, is a phrase borrowed from the *Mundaka Upanishad*. As a slogan it was popularized and brought into widespread national usage by Pandit Madan Mohan Malviya as the president of the Indian National Congress in 1918. It was declared as the national motto of India on the occasion of Independence. It is inscribed on the base of our national emblem: the Lion Capital of Ashoka. We also find it on the obverse of the Indian currency.

The whole Vedic literature is considered to have been revealed by god and therefore, considered sacred. Chronologically, it spans thousand years, with some belonging to an earlier period and some portions to a later period. The *Rigveda* is the oldest document of India. Books II-VII of the *Rigveda* are the earliest and are also called the Family Books because each is ascribed by tradition to a particular family of sages (*rishis*).

When we refer to the early Vedic literature we essentially refer to Books II-VII of the *Rigveda* believed to have been composed between c. 1500-1000 BCE. The later Vedic literature includes Books I, VIII, IX and X of the *Rigveda*; *Sama Veda*; *Yajur Veda*; *Atharva Veda*; *Brahmanas*; *Aranyakas* and *Upanishads*. These were composed between c. 1000-500 BCE.

Though most of the Vedic literature contains songs, prayers, theological and theosophical matter, these have been used by historians to cull out political, religious and social data of much historical value. Information about processes like the transition from a pastoral, pre-class/caste society in the *Rigveda* to agrarian, class, caste society and formations of political territories in the later Vedic period has been obtained from these texts.

Then, there is a category of texts – the *Sutras* – which form part of the post-Vedic literature. These have been classified as *smriti*: memorized rather than heard (*shruti*) texts. The suggested meaning is that these were composed by humans – the great sages – and, as such, do not enjoy the sanctity of the *Vedas* though they are considered authoritative in their own right. The *Sutra* texts are manuals on ritualism (c. 600-300 BCE). These include:

- The *Shrautasutra*: contains rules for the performance of great sacrifices.
- The *Grihyasutra*: contains directions for simple ceremonies and sacrificial acts of daily life.
- The *Dharmasutra*: These are the books of instructions on spiritual and secular law – the oldest law books.

The *Dharmasutras* and the *Smritis* are rules and regulations for general public and the rulers. They can be termed, in the modern sense, as the constitution, the law-books for the ancient Indian polity and society. These are also called the *Dharmashastras*. They were compiled between c. 600 BCE-200 CE. The *Manusmriti* is prominent among them.

Post-*sutra* texts are the *Smriti* texts which are:

- The *Manu Smriti*,
- The *Narada Smriti*, and
- The *Yajnavalkya Smriti*.

These were composed between c. 200 BCE and 900 CE. They prescribe duties for the different *varnas* as well as for the kings and their officials. They set out rules for marriage and property. They also prescribe punishments for persons guilty of theft, assault, murder, adultery etc.

1.2.2 Kautilya's *Arthashastra*

It is an important law-digest on economy and statecraft. The text is divided into 15 books, of which Books II and III may be regarded as being of an earlier date and seem to have been the works of different hands. These different books deal with different subject-matter concerning polity, economy and society. It was put into final form in the beginning of the Common era. However, the earliest portions reflect the state and society of the Mauryan period. It provides rich material for the study of early Indian polity and economy. It appears that even before the final version of *Arthashastra* there was a tradition of writing on and teaching of statecraft because Kautilya acknowledges his debt to his predecessors in the field.

1.2.3 Epics

The two great epics – the *Ramayana* and the *Mahabharata* (c. 500 BCE-500 CE) – can also be used as a historical source. They are known as *Itihaas* (“thus it was”) or narratives. Vyasa’s *Mahabharata* is older and possibly reflects the state of affairs from c. 10th-4th century BCE. The main narrative which relates to the Kaurava-Pandava conflict may relate to the later Vedic period, the descriptive portion might be post-Vedic and the didactic portions generally relate to the post-Mauryan and Gupta periods (R.S. Sharma, 2005).

It is generally held that there have been constant interpolations in these works. Since both of them contain portions added at various points of time the historians have to be careful in sifting material and take into account their different chronological layers. They constitute popular literature which is even today regularly performed by the people of India ceremoniously. Therefore, with the increasing interest of the listeners the enthusiast story-tellers went on adding chapters to elaborate the details. That’s how interpolations occurred.



LEFT: *Mahabharata* Scenes Made for the First Time in Sculpture, Gupta Period. Location: National Museum, New Delhi. Credit: Nomu420. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Mahabharat,_Gupta_artefacts_03,_National_Museum,_New_Delhi.jpg).

RIGHT: Carving of a *Ramayana* Scene. Credit: B. Balaji. Source: Wikimedia Commons ([https://commons.wikimedia.org/wiki/File:Ramayana_In_carving_\(2444648102\).jpg](https://commons.wikimedia.org/wiki/File:Ramayana_In_carving_(2444648102).jpg)).

The *Ramayana* of Valmiki appears to be more unified than the *Mahabharata*. Some of the sites mentioned in both the epics have been excavated. Ayodhya excavations have revealed settlements going back to the Northern Black Polished Ware period. Hastinapur, Kurukshetra, Panipat, Baghpat, Mathura, Tilpat and Bairat etc. have been excavated and these date back to the Painted Grey Ware period. Both the epics are a mine of information on religious sects, how they were integrated into mainstream Hinduism, social practices and norms current at the time, philosophy etc.

1.2.4 Puranas

The *Puranas* are a category of Hindu texts attributed to Vyasa. They are dated to the Gupta and post-Gupta period. There are 18 *Mahapuranas* and numerous *Upapuranas* (supplements or appendices to the *Puranas*). Their content indicates that these were heterogeneous, encyclopedic works of various hands encompassing multifarious topics. For example, the range of topics covered by *Agni Purana* (c. 8th-11th centuries CE) include ritual worship, cosmology and astrology, mythology, genealogy, law, politics, education system, iconography, taxation theories, warfare and organization of army, theories on proper causes for war, martial arts, diplomacy, local laws, building public projects, water distribution methods, trees and plants, medicine, design and architecture, gemology, grammar, metrics, poetry, food and agriculture, rituals, geography and travel guide to Mithila (Bihar and neighboring states), cultural history etc.

The following five branches are considered to form the subject-matter of the *Puranas*:

- i) *sarga* (evolution of universe/creation of the world),
- ii) *pratisarga* (involution of universe/re-creation),
- iii) *manvantara* (recurring of time/periods of the various Manus),
- iv) *vamsha* (genealogical lists of gods, kings and sages), and
- v) *vamshanucharita* (an account of royal dynasties/life stories of some selected characters).

Later on, description of the *tirthas* (sacred places of pilgrimage) and their *mahatmya* (religious importance) was also included in the Puranic/Pauranic literature.



Krishna Raas-Leela Relief at the 12th Century Hoysaleswara Hindu Temple, Halebid, Karnataka, based on a Narrative of the *Bhagvat Purana*. Credit: Ms. Sarah Welch. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:12th-century_Bhagavata_Purana_Krishna_Rasa_lila_relief_at_Shaivism_Hindu_temple_Hoysaleswara_arts_Halebidu_Karnataka_India.jpg).

The *Puranas* contain useful information for reconstructing the history of ancient India. They throw light on the political history and genealogies of dynasties. There is much on the ancient dynasties such as the Haryankas, Shishunagas, Nandas, Mauryas, Sungas, Kanvas and Andhras. Certain kings with their names ending in the suffix ‘*naga*’ are also mentioned who, supposedly, ruled in northern and central India. Interestingly, we do not know about these kings from any other source. The dynastic lists end with the Guptas, indicating that the *Puranas* may have been compiled by c. 4th-6th centuries CE. However, there are a few which are later, such as the *Bhagvat Purana* (c. 10th century) and *Skanda Purana* (c. 14th century).

They are also important for providing geographical information on rivers, lakes, mountains etc. Hence, they are crucial for reconstructing the historical geography of ancient India. Besides, they are a good source of information on the three major cults of Hinduism: Vaishnavism, Shaivism and Shaktism. Various processes like how different cults became integrated within the major religious traditions and how minor cults like Ganpatya, Krishna, Brahma, Karttikeya etc. emerged can also be gleaned from them. They have been understood as a vehicle through which the *Brahmanas* spread their social and religious values.

1.2.5 Sangam Literature

The earliest Tamil texts are found in the corpus of the *Sangam* literature (c. 400 BCE-200 CE). This is the work of poets who composed short and long poems over a period of three to four centuries, patronized by chiefs and kings. They assembled in colleges which were called the *Sangams* and the literature produced in these colleges was, thus, called the *Sangam* literature. There were three *Sangams* (literary gatherings): the 1st and last at Madurai and the 2nd at Kapatapuram. There is, however, some doubt about the historicity of these gatherings. Some scholars, therefore, like to use the term “the early classical Tamil literature” rather than *Sangam* literature (Upinder Singh, 2008). Though the poems of the first two *Sangams* are generally rejected as ahistorical some modern scholars do consider them of historical value.

The poems – some 30,000 lines of poetry – are on the themes of love and war. They were modelled on the bardic songs of ancient times and transmitted orally for a long time before they were compiled. They do not constitute as religious literature. The poets came from all walks of life and included teachers, merchants, carpenters, goldsmiths, blacksmiths, soldiers, ministers and kings. Due to their varied themes and authorship they are a mine of information on everyday life of the people of their times. They constitute literature of the highest quality. As just stated, they describe many kings and dynasties of south India. Many poems mention a king or a hero by name and describe in detail his military exploits. The gifts made by him to bards and warriors are celebrated. May be, these poems were recited in the royal court. It is possible that the names of the kings refer to actual historical figures. The Chola kings are mentioned as donors.

The *Sangam* literature mentions many flourishing towns such as Kaveripattinam. They also speak of the *Yavanas* coming in their own vessels, purchasing pepper for gold and supplying wine and women slaves to the natives (R. S. Sharma, 2005). The information yielded by the *Sangam* literature on trade is corroborated by archaeology and foreigners' accounts. The mention of some kings and events is supported by inscriptions also.

1.2.6 Biographies, Poetry and Drama

Early India is a repository of numerous masterpieces of drama and poetry. The historians have used them to cull information on the times in which they were composed. The earliest Sanskrit poets and playwrights include Ashvaghosha and Bhasa. Ashvagosha authored *Buddhacharita*, *Sariputraprakarna* and *Saundarananda*. Bhasa was a dramatist and wrote *Pancharatra*, *Dutavakya*, *Balacharita* and *Svapna-Vasavadatta*. The great Sanskrit writer-poet Kalidasa (c. 4th-5th centuries CE) authored dramas like *Abhijnana-Shakuntalam*, *Malavikagnimitram*, *Vikramorvashiyam* and poetic works such as *Raghuvamsham*, *Kumarasambhavam* and *Meghadutam*. They provide important insights into the social and cultural life of the Guptas. The *Malavikagnimitram* is based on events of the reign of Pushyamitra Shunga (Shunga was the dynasty that followed the Mauryas).



LEFT: Depiction of Kalidasa, One of the *Navratnas* (Nine Gems) of the Court of Gupta King Chandragupta Vikramaditya. Credit: NehalDaveND. Source: Wikimedia Commons (<https://commons.wikimedia.org/wiki/Category:K%20C4%81lid%C4%81sa#/media/File:Kalidas.jpg>).

RIGHT: Sage Durvasha Curses Shakuntala for Being Lost in Fantasy about her Lover Dushyant: An Episode from the Sanskrit Play *Abhijnana-Shakuntalam* by Kalidasa, c. 1895. Credit: Chore Bagan Art Studio. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Durvasha_Shakuntala.jpg).

Then, there are ancient dramas on historical themes. Mention may be made of Vishakhadatta's *Mudrarakshasa* (c. 7th-8th centuries CE). This drama is based on how Chanakya tries to win over Rakshasa – a minister of the Nandas – to Chandragupta Maurya's side. It also gives a glimpse of the then society and culture. His other play *Devichandraguptam* centers on an incident in the Gupta king, Ramagupta's reign. Shudrak is another poet who has written plays based on historical events.

The narrative literature includes *Panchatantra* (c. 5th-6th centuries CE) and *Kathasaritasagara* (Ocean of Streams of Stories). They are the collections of popular folk tales.



Panel Showing the “Monkey and Crocodile” and the “Mongoose and Snake” Fables from the *Panchatantra*, Virupaksha Temple, Pattadakal, Karnataka. C. 8th Century CE. Credit: Ms. Sarah Welch. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:8th_century_Panchatantra_legends_panels_at_Virupaksha_Shaivism_temple,_Pattadakal_Hindu_monuments_Karnataka_1.jpg).

Biographies of well known kings are an interesting piece of literature. These were written by the court-poets and writers in praise of their royal patrons. Banabhatta's *Harshacharita* (c. 7th century CE) talks in eulogistic terms about Harshavardhan of the Pushyabhuti dynasty. It is the oldest surviving biography in India. According to Bana it is an *adhyayika*: a genre of texts related to the *itihasa* tradition. It speaks highly of the king but at the same time hints at the fratricidal struggle for the throne. It throws light on many historical facts about which we could not have known otherwise. Bilhana's *Vikramankadevacharita* (c. 12th century) is about the later Chalukyan king Vikramaditya VI and describes his victories.

Vakpati wrote *Gaudavaho* based on the exploits of Yashovarman of Kannauj. There are some other biographical works based on the lives of different kings. The prominent among these are:

- i) *Kumarapalacharita* of Jayasimha,
- ii) *Kumarapalacharita* or *Dvyasryakavya* of Hemachandra,
- iii) *Hammirakavya* of Nayachandra,
- iv) *Navasahasankacharita* of Padmagupta,

- v) *Bhojaprabanda* of Ballal, and
- vi) *Prithvirajacharita* of Chanda Bardai.

But, from the historical point of view the *Rajatarangini* by Kalhana is the best illustration of history-writing appreciated by modern historians. His critical method of historical research and impartial treatment of historical facts have earned him a great respect among modern historians. He was a Kashmiri Brahmin and is regarded as Kashmir's 1st historian. Little is known about him except from what he tells us about himself in the opening verses of his book, in which he also presents his views on how history ought to be written. He says:

- *Verse 7. Fairness: That noble-minded author is alone worthy of praise whose word, like that of a judge, keeps free from love or hatred in relating the facts of the past.*
- *Verse 11. Cite earlier authors: The oldest extensive works containing the royal chronicles [of Kashmir] have become fragmentary in consequence of [the appearance of] Suvrata's composition, who condensed them in order that (their substance) might be easily remembered.*
- *Verse 12. Suvrata's poem, though it has obtained celebrity, does not show dexterity in the exposition of the subject-matter, as it is rendered troublesome [reading] by misplaced learning.*
- *Verse 13. Owing to a certain want of care, there is not a single part in Kshemendra's "List of Kings" (Nripavali) free from mistakes, though it is the work of a poet.*
- *Verse 14. Eleven works of former scholars containing the chronicles of the kings, I have inspected, as well as the [Purana containing the] opinions of the sage Nila.*
- *Verse 15. By looking at the inscriptions recording the consecrations of temples and grants by former kings, at laudatory inscriptions and at written works, the trouble arising from many errors has been overcome.*

Kalhana's work is immensely valuable as a source of information on early legends, customs and the history of Kashmir.

1.2.7 Buddhist and Jain Literature

Among the non-Brahmanical and non-Sanskritic sources of early India the Buddhist and Jain literature constitute an important category. It was written in the Pali and Prakrit languages respectively. Prakrit was a form of Sanskrit and early Jain literature is mostly written in this language. Pali can be regarded as a form of Prakrit which was in vogue in Magadha. Most of the early Buddhist literature is written in Pali. With the Buddhist monks it reached Sri Lanka where it is a living language. The Ashokan edicts are also in Pali.

Said to have been composed after the death of the Buddha, the Pali texts *Tripitakas* ("Three Baskets") tell us about the state of affairs in India at the time of the Buddha and the 16 *Mahajanapadas*. *Tripitakas* is the common name given to Buddhist canonical literature and their commentaries in Pali. The *Tripitakas* survive in Pali, Japanese, Chinese and Tibetan versions. They consist of three books:

- i) the *Sutta Pitaka*,

- ii) the *Vinaya Pitaka*, and
- iii) the *Abhidhamma Pitaka*.

The *Sutta Pitaka* contains the discourses of Buddha on various doctrinal issues in stories, poems and dialogue form. The *Vinaya* is about 227 rules and regulations for the monks and nuns of the *sangha*. It includes explanations about the founding of each rule by the Buddha. It contains information about his life, events and the story of Buddhism down to the 1st schism. It was written in 386 BCE.



Illustrated Frontispiece of the Japanese Version of Vinaya Pitaka, Japan, c. 12th Century. Credit: Hiart. Creative Commons CC0 1.0 Universal Public Domain Dedication.

The *Abhidhamma Pitaka* (literally “higher *Dhamma*”) contains matter related to the Buddhist philosophy in accordance with the *Theravada* school and contains lists, summaries and questions and answers. The *Sutta Pitaka* contains five *Nikayas* of which the *Khuddaka Nikaya* is a collection of discourses. It contains *Theragatha*, *Therigatha* and *Jatakas* which are important sources for a historian. The *Jatakas* contain stories – more than 550 in number – about the former births of the Buddha in the form of a *dev*, man, animal, fairy, spirit or a mythological character. They are ascribed some historical importance as they are related to the previous births of the Buddha. Many stories and motifs were borrowed from pre-Buddhist and non-Buddhist oral vernacular traditions. Due to their popularity they were transformed into sculptural *bas reliefs* at Bharhut, Sanchi, Nagarjunakonda and Amaravati. They are important as they provide a glimpse into the history of Buddhism and popular Buddhism.

Theragatha (“Verses of the Elder Monks”) and *Therigatha* (“Verses of the Elder Nuns”) are a collection of poems, with verses which were narrated by the early members of the Buddhist *sangha*. *Therigatha* is the first surviving poetry in India supposed to have been composed by women. Hence, it is important for not only Buddhism but also for gender studies. The *gathas* of the *Therigatha* strongly support the view that women are equal to men in terms of spiritual attainment.

The non-canonical Buddhist literature includes *Milindapanha* (“Questions of Milinda”) dated around 1st century BCE-1st century CE. It consists of a dialogue between the Indo-Greek king Menander and a Buddhist monk Nagasena. The Sinhalese chronicles *Mahavamsha* (“Great History”) and *Dipavamsha* (“History of the Island”) entail the history of Buddhism from the time of the Buddha’s Enlightenment.

The Jain literature constitutes another important category of texts which are in a form of Prakrit called the *Ardhamagadhi*. It contains information which helps us in reconstructing the history of different regions of ancient India. The literature of the *Digambaras* is in *Jain Shauraseni* while the *Shvetambara* literature is in two dialects of *Ardhamagadhi*. Mahavira’s teachings to his disciples were 1st compiled in 14 *Purvas*. In c. 4th century

BCE Sthulabhadra convened a great council at Pataliputra and reconstructed the Jain canon in 12 *Angas*. Later in c. 5th century CE at a council at Valabhi the existing texts were formalized and presented in a written form.



LEFT: Depiction of *Mahakapi Jataka* at Bharhut. Credit: G41m8. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Mahakapi_Jataka_in_Bharhut.jpg).

RIGHT: *Sibi Jataka*: during one of his previous lives the Buddha offers his own flesh to a hawk to ransom the life of a pigeon. Piece Dated Between c. 100 -299 CE, Found at Gandhara (now in Pakistan). Preserved in the British Museum, London. Photographer: Marie-Lan Nguyen. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Sibi_Jataka_BM_OA_1912.12-21.1_n01.jpg).

The scriptures accepted by the *Shvetambaras* are:

- i) 12 *Angas*,
- ii) 12 *Upangas*,
- iii) 10 *Prakirnas*,
- iv) 6 *Chedasutras*,
- v) 2 *Sutras*, and
- vi) 4 *Mulasutras*.

They deal with code of conduct, various legends, Jain doctrines and metaphysics. The *Digambaras* believe that most of the original *Purvas* are lost. Hence, they do not accept the scriptures accepted by the *Shvetambaras*. They use the scriptures written by the great *Acharyas* but based on the original teachings of Mahavira for their religious practices. We can use the Jain literature for information on history and doctrine of Jainism, doctrines of the rival schools, life stories of saints and lives of monks in the Jain sangha.

Check Your Progress Exercise 1

- 1) Discuss briefly the two categories into which the sources for knowing ancient Indian history have been divided.

.....
.....
.....
.....

- 2) What is a *Veda*? Write a short note on the four *Vedas*.

.....

-
.....
.....
.....
- 3) Throw light on the *Puranas* as a historical source.
-
.....
.....
.....
- 4) Mark the following statements as right (✓) or wrong (✗).
- i) The archaeological evidence has acquired significance for the ancient period only. ()
 - ii) There has been much debate about the reliability of ancient Indian literature for the history of India. ()
 - iii) There are six *vedangas* and they were evolved for a proper understanding of the *Vedas*. ()
 - iv) The *Vinaya Pittika* is a collection of 220 rules and regulations for the members of the *sangha*. ()
 - v) The *Harshacharita* was written by Kalidasa. ()
 - vi) It is generally held that there have been constant interpolations in the epics. ()
 - vii) Kalhana's *Rajatarangini* is a chronicle of the kings of Rajasthan. ()
 - viii) *Therigatha* is the 1st historical literary source of India supposed to have been composed exclusively by women. ()
 - ix) The *Tripitakas* survive in the Pali canon alone. ()
 - x) Vishakhadatta's play *Devichandraguptam* throws light on the reign of the Gupta king Samudragupta. ()

1.3 ARCHAEOLOGICAL SOURCES



Mauryan Ruins of Pillared Hall at Kumrahar of Pataliputra laid bare by Excavations. Credit: 1912-13 Archaeological Excavation by ASIEC. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Mauryan_ruins_of_pillared_hall_at_Kumrahar_site_of_Pataliputra_ASIEC_1912-13.jpg).

Archaeology is a branch of knowledge that studies material culture to understand the past. It has a close relation to the field of history. Sculptures, pottery remains, bone fragments, house remains, temple remnants, floral remains like charred grains, coins, seals, inscriptions etc. constitute the material culture that forms the subject-matter of archaeology. It is the archaeological evidence that has permitted us to study the prehistoric period. In India even the proto-historic period has been reconstructed on the basis of archaeology. However, we cannot limit the usefulness of archaeology to these periods alone; it is significant even for those periods which have the written evidence and which fall in the sphere of history proper. For example, the history of the Indo-Greeks has been reconstructed solely on the basis of coins.

The utilization of archaeological sources in reconstructing India's past is only about two centuries old. It was held till the 1920s that the Indian civilization was considered to have begun from about c. 6th century BCE. But, with the excavations at Mohenjodaro and Harappa the antiquity of Indian civilization has gone back to about 5000 BCE. The finds of the prehistoric artifacts have shown that human activities had started here as early as two million years ago. Similarly, it was believed that most of the Indian subcontinent came to be populated only around the later part of the 1st millennium BCE, but now with the help of archaeology we know that it was populated sparsely and thickly right from the Stone-Age periods.

Archaeological methods like excavation and exploration are important as they provide significant amount of data on trade, state, economy, societal aspects, religion and such mundane aspects like how people lived, ate and clothed themselves. The excavations have provided immense amount of data bearing on the Palaeolithic, Mesolithic, Neolithic, Chalcolithic, Iron age, Megalithic and many other cultures. Since the Harappan script is still undeciphered the information about this period has been solely obtained from archaeology. It tells us about the origin, spread, settlement patterns, town planning, trade, polity, economy, agriculture, hunting, crops, agricultural implements, technology, beads, seals, fire altars, religion and how this civilization declined.

Archaeological Source

A varied range of archaeological finds are useful for reconstructing Indian history. For example, excavated remains, standing monuments, sculptural reliefs and inscribed records. Through ground reconnaissance sites are identified which include methods like consultation of the documentary sources, place name evidence etc. Through aerial surveying which includes airborne or space-borne remote sensing those sites which can often be missed on the ground can be located. Sites once marked on the landscape can be further compared and systematically studied to arrive at settlement patterns, site formation processes and geo-archaeological analysis. A large number of experts are involved in the study of archaeological artefacts such as palaeontologists (who study fossilized animal bones), palynologists (who study and analyse fossil pollen), geo-archaeologists (who study earth formation and the soil and sediment patterns), archaeo-zoologists (who study, identify and analyze faunal species from sites); ethno-archaeologists (who study living people and tribes to arrive at hypothesis regarding the past) and many more.

Excavation

Excavations are of two types:

- i) Vertical

ii) Horizontal.

Vertical excavations are conducted with the aim to reveal stratification and are cut into deep deposits. Horizontal excavations emphasize the horizontal dimension by opening up large areas of a particular layer to reveal the spatial relationships between artefacts and features in that layer. Many excavators employ a combination of excavation strategies. Through systematic studying of the artefacts which also involves lab analysis the archaeologists arrive at conclusions regarding past life-ways and events. Today, a range of material which was earlier not considered worth studying is considered important, such as the recovery of burnt seeds, plant material, pollen remains and faunal remains (to reconstruct the past ecosystem, diet); teeth and bones of both animals and humans (to reconstruct diseases and diet patterns in the past) etc.

Today the archaeologists have at their disposal a large number of dating methods through which they assign age to a particular artefact. Radiocarbon dating is the most popular and can date the most commonly occurring artefacts in the deposit such as charcoal, wood, seeds, plant material, human and animal bone remains. Other absolute dating techniques are also used; for example, Thermoluminescence dating (dates pottery, burnt terracotta); Dendrochronology (assigns age to the different rings of a tree log) etc.

We have benefitted from the other branches like epigraphy and numismatics etc. We could not have known about most of the Indo-Greek, Shaka-Pahlava and Kushan kings without numismatic sources. Similarly, Ashoka's views on *dharma* and the conquests of Samudragupta etc. would have remained unknown without their epigraphs.

1.3.1 Coins



Hoard of Mauryan Punch-Marked Coins. Credit: Classical Numismatic Group, Inc. <http://www.cngcoins.com>. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Hoard_of_mostly_Mauryan_coins.jpg).

Coins have been found either in excavations as archaeological finds or as hoards. They are mostly found in hoards, most of which have been discovered while digging a field or excavating the foundation for the construction of a building, making road etc. The study of coins is called **Numismatics**. This is considered as the 2nd most important source for reconstructing the history of India; the 1st being inscriptions. Several hundred thousands of coins have been found and deposited in different museums of India and abroad. The coins found in systematic excavations are less in number but are very valuable because their chronology and cultural context can be fixed precisely.

A coin is a metal currency and has a definite shape, size and weight standard. It also bears the stamp of the issuing authority. The side of the coin which carries the message is called obverse and the opposite side is reverse. The Second Urbanization (c. 6th century BCE) in the early Indian history is the 1st instance for which we find both the literary and archaeological evidence of coinage. This was the time of the emergence of

states, growth of towns and cities and spread of agriculture and trade. Coins in early India were made of copper, silver, gold and lead. Coin moulds made of burnt clay, dating to the Kushan period (first three centuries of the Common era), have been found in hundreds. They point to the increased commerce during this time. The post-Mauryan coins were made of lead, potin, copper, bronze, silver and gold. They were issued in large numbers, pointing to the increased volume of trade during this period.

Most of the coins belonging to the major dynasties have been catalogued and published. The earliest coins in the subcontinent are the **Punch-Marked coins**. These are mostly of silver and sometimes of copper. Some gold Punch-Marked coins are also reported but they are very rare and their authenticity is doubtful. The Punch-Marked coins bear only symbols on them. Each symbol is punched separately which sometimes overlaps one another. These have been found throughout the country: from Taxila to Magadha to Mysore or even further south. They do not bear any inscription or legend on them. With the expansion of the Magadhan empire the Magadhan type of Punch-Marked coins replaced those which were issued by the other states.

Next, the Indo-Greek coins are also in silver and copper and the gold ones are rare. They show beautiful artistic features on them. The portrait or bust of the king on the observe side appears to be real portraits. On the reverse some deity is depicted. It is through the coins only that we know about more than 40 Indo-Greek rulers who ruled in small regions of north-western India. As mentioned earlier, we know about several Shaka-Pahlava kings about whom we would have no information from any other source.



Deities on Indo-Greek Coins. Source: ‘Alexander the Great and Bactria: The Formation of a Greek Frontier in Central Asia’. Source: Wikimedia Commons (https://en.wikipedia.org/wiki/File:Deities_on_the_coinage_of_Agathokles.jpg).

The Kushanas issued their coins mostly in gold and copper, rarely in silver. Their coins are found in most parts of north India up to present-day Bihar. The imperial Guptas issued mostly gold and silver coins but the gold coins are more numerous. Indian influence can be seen on them from the very beginning. The coins of Vima Kadphises bear the figure of Shiva standing beside a bull. In the legend on these coins the king calls himself Maheshvara i.e. a devotee of Shiva. Kanishka, Huvishka and Vasudeva etc. all have this depiction on their coins. We find many Indian gods and goddesses depicted on the Kushan coins besides many Persian and Greek deities.

Though the earliest coins carried only symbols the later ones had figures of the kings, divinities and also mention their dates and names. For example, the western Kshatrapa coins give dates in the *Shaka* era. The area of the circulation of coins has enabled us to reconstruct the history of several ruling dynasties. The coins offer valuable information on political organization. For instance, the coins of Yaudheyas and Malavas carry the legend ‘*gana*’ which tells us about their non-monarchical form of polity. The image of a ship on the Satavahana coins of the Deccan bears testimony to the significance of maritime trade.



A Gupta Gold Coin Depicting Queen Kumaradevi and King Chandragupta I. Location: British Museum, London. Credit: Uploadalt. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Queen_Kumaradevi_and_King_Chandragupta_I_on_a_coin.jpg).

The Guptas appear to have succeeded the Kushanas in the tradition of minting coins. They completely Indianised their coinage. They also issued a number of gold coins. Known as *dinaras* they were well-executed die-struck coins. The obverse depicts the reigning king in various poses: the kings are depicted engaged in activities like hunting a lion or rhinoceros, holding a bow or battle-axes, playing musical instrument or performing the *Ashvamedha Yajna*. The coins of Samudragupta and Kumaragupta I show them playing the *vina*.

In the post-Gupta period the gold coins declined in number and purity. This became the basis of the highly contested Feudalism theory of R. S. Sharma who believed that the debasement of coinage and the increased use of *cowries* point to the decline of trade and commerce in this period.

1.3.2 Inscriptions

One of the most important and reliable sources for writing history are the inscriptions. An inscription, being a contemporary document, is free from later interpolations. It comes in the form it was composed in and engraved for the 1st time. It is almost impossible to add something to it at a later stage, as we generally find with the works written on soft materials like birch bark, palm leaf, paper etc. which were frequently required to be copied because the old manuscripts became fragile with the course of time. At the time of copying some errors did creep in or, sometimes, even few additions were made. This is not possible with inscriptions.

The study of inscriptions is called **Epigraphy**. They are carved on seals, copper plates, temple walls, wooden tablets, stone pillars, rock surfaces, bricks or images. The script of the inscriptions also helps a historian in many ways. The oldest inscriptions are in the Harappan script of c. 2500 BCE which is still un-deciphered. The writing is carved on the Harappan seals but so far no attempt has been successful at deciphering it.

The earliest deciphered inscriptions are the Ashokan edicts which have been found on the rock surfaces and stone pillars all through the subcontinent. These are found written in four scripts. In his empire in the present-day Afghanistan he used Aramaic and Greek scripts for his edicts. In the Gandhara region *Kharoshthi* script was used. *Kharoshthi*

evolved on the *Varnamala* system of the Indian languages and is written from right to left. The *Brahmi* script was used for the rest of his empire: from Kalsi in the north in Uttaranchal up to Mysore in the south.

After Ashoka the *Brahmi* script was adopted by the rulers of the succeeding centuries. The most interesting thing about it is that its individual letters were modified century after century and through this process all the scripts of India including Tamil, Telugu, Kannada and Malayalam in the south and Nagari, Gujarati, Bengali etc. elsewhere have developed from it. This modification in the form of individual letters has an advantage. It has made roughly possible to ascertain the time/century in which the particular inscription was written. The study of the development of scripts is called **Palaeography**.

The credit to complete the chart of Ashokan alphabets goes to James Prinsep. After this the study of epigraphs became a subject in itself. He was a civil servant in the employ of the East India Company in Bengal. The Ashokan inscriptions are a class in itself. Recorded in the different regnal years of his reign they are called Edicts because they are in the form of the king's order/desire. They also give a glimpse of his image and personality as a benevolent king concerned with the welfare of not only his subjects but also of the entire humanity.

The Ashokan inscriptions are in a fairly developed script and it is assumed that writing must have existed in the earlier period too. Potsherds with short inscriptions have been found in excavations at Anuradhapura in Sri Lanka which can be dated to the pre-Mauryan period of c. 4th century BCE. The earliest Sanskrit inscriptions appeared in c. 1st century BCE. The Junagarh Rock inscription of Rudradaman is considered as an early example of chaste Sanskrit written in mid 2nd century CE. The early inscriptions were a mixture of Prakrit and Sanskrit which by c. 5th century CE were replaced by Sanskrit as the language of the royal inscriptions.

The inscriptions are of various kinds. The Ashokan inscriptions were royal orders pertaining to social, religious and administrative matters addressed to the officials or people in general. The Lumbini pillar inscription of Ashoka is a commemorative inscription as it records his visit to the Buddha's birthplace. Then, there are memorials like the *sati* stones or hero stones, some of which carry inscriptions. The donative inscriptions which record the erection of a temple or a shrine have been found in hundreds in the Deccan and south India in the early medieval period.

Besides these, we have several thousand inscriptions in the forms of royal land-grants engraved on copper plates. These are donative documents which record grants of land and other items to the *brahmanas* and other beneficiaries. Though these land-grant inscriptions deal with the sale or donations of lands to temples, deities, the *brahmanas* and so on, most of the times they contain also details of genealogy of donors and donee and other economic information. These, thus, become a great source of political, social and economic history. From them we also came to know about the grant of lands, free from all the taxes, to the learned *brahmanas*. These were called the *Agraharas*.

The inscriptions which eulogize their patrons begin with a *prashasti*. The examples are the Hathigumpha inscription of Kharavela – the 1st century BCE-1st century CE king of Kalinga (Odisha) – and the Allahabad Pillar inscription of the Gupta king Samudragupta. Inscriptions of the Kshaharatas, Shaka-Kshatrapas and Kushanas adopt Indian names within two or three generations. These inscriptions show them being engaged in social and religious welfare activities. As we learnt earlier, Sanskrit came to occupy a prime

place since the Gupta period. The Allahabad Pillar Inscription enumerates the achievements of Samudragupta. But for this sole inscription this great Gupta king would have remained unknown in the history of India. Most of the Gupta epigraphs give genealogy. This became the practice of the subsequent dynasties. They took the opportunity to give an account of their conquests and achievements of their predecessors including the mythology of their origins. The Chalukya king Pulakeshin II gives a dynastic genealogy and achievements in his Aihole inscription. Similarly, the Gwalior inscription of Bhoja gives full account of his predecessors and their achievements.

Some inscriptions record the construction of a dam, reservoir, tank, well or charitable feeding houses. The Junagadh (Girnar) inscription of Shaka ruler Rudradaman records the construction of a water reservoir called Sudarshana lake during the time-period of Chandragupta Maurya, its completion during the reign of Ashoka and its repair in c. 2nd century CE. Apart from these different kinds of inscriptions we also find miscellaneous types such as labels, graffiti, religious formulae and writing on seals etc.

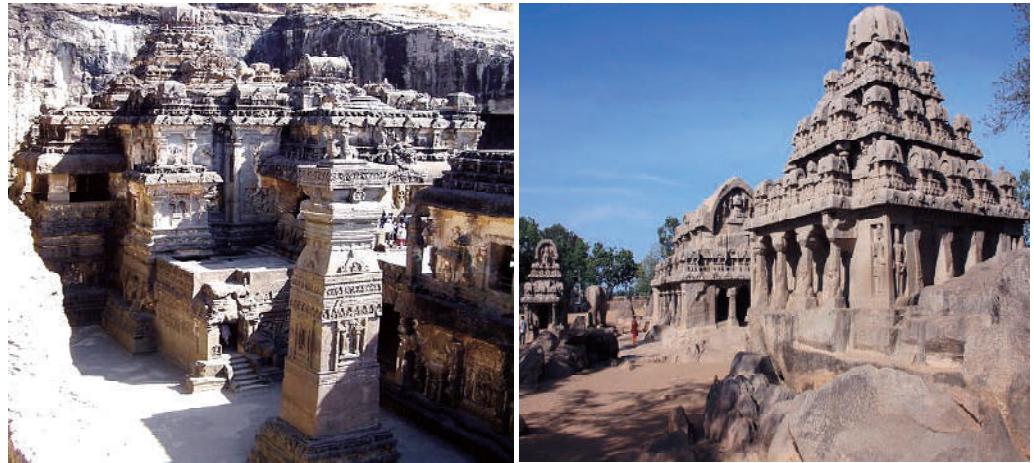
The inscriptions are a good source of political, social and economic history. They are valuable tools for the historian as they tell us about contemporary events and common people. Their spread is taken as an indicator of the reigning king's domain. Many inscriptions contain useful information about genealogy, dynastic details and sometimes, names of even those kings who have been missed out in the main genealogies. The land grants of the Pallava, Chalukya and Chola period inform us about the contemporary revenue systems, agricultural details and political structures.

Inscriptions have many more uses. For example, they help us to date the sculptures on which they occur, give us information about the extinct religious sects like the *Ajivikas*, tell us about historical geography, history of iconography, art and architecture, history of literature and languages, and even the performing arts like music. They are more reliable than the literary texts as they are not always religious in nature.

1.3.3 Monuments

In addition to the epigraphic and numismatic sources there are many other antiquarian remains which speak about our past. The temples and sculptures are found all over the country right from the Gupta period up to recent times. These show the architectural and artistic history and achievements of Indian culture. Large caves, like at Ajanta and Ellora, were excavated in the hills in western India which constitute *chaityas* and *viharas*. Large temples have been carved out of rock like the Kailash temple of Ellora and the *rathas* at Mamallapuram. The monuments of medieval period show the grandeur and riches enjoyed by the ruling class. Also, they throw light on the regional styles of architecture, influences from different areas etc.

The archaeological excavations also brought to light the townships of Taxila, Kaushambi, Kashi (Rajghat), Ayodhya, Vaishali, Bodhgaya, etc. belonging to the Buddha's time. All of these places except Taxila are said to have been visited by the Buddha in c. 6th century BCE.



LEFT: The Kailash Temple at Ellora Caves, Aurangabad, Maharashtra. ASI Monument No. N-MH-A51. Credit: Rashmi.parab. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Kailas_Temple_at_Ellora_Caves.jpg).

RIGHT: The Temple of *Pancha-Rathas* (Five-Rathas) at Mamallapuram, Chennai, Tamilnadu. Credit: Howard Banwell. Source: Wikimedia Commons (https://en.wikipedia.org/wiki/File:Five_Rathas_Mamallapuram.JPG).



Archaeological Remains of a Monastery at Kaushambi (Prayagraj District, Uttar Pradesh). Credit: Vinod26Jan. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Ghoshitaram_monastery_in_Kosambi.jpg).

1.4 FOREIGNERS' ACCOUNTS

Many travellers came to India as pilgrims, traders, settlers, soldiers and ambassadors. They have left behind accounts of places they visited and things they saw. If studied with due caution these accounts give a lot of valuable historical information. The Greek writers mention Sandrokottas who is said to have met Alexander as a young man. In the 18th century William Jones identified Sandrokottas as Chandragupta Maurya which formed the basis of Mauryan chronology.

Ambassadors were sent to Pataliputra by Greek kings. Some of them were Megasthenes, Deimachus and Dionysios. Seleucus's envoy Megasthenes wrote *Indica*: an account of his stay at the court of Chandragupta Maurya. Though this text is no longer present the subsequent writers refer to certain portions of it and it has been possible to reconstruct the administrative structure, social classes and economic activities of the Mauryan period. Megasthenes and so also the accounts of those who accompanied Alexander have been lost and are available only in fragments.

The Greek and Roman accounts give useful information about the Indian Ocean trade in early India. An anonymous Greek author settled in Egypt wrote **Periplus of the Erythrean Sea** (c. 80-115 CE) on the basis of his personal voyage of Indian coast in about 80 CE. He gives valuable information about Indian coasts. Another writer Ptolemy wrote a geographical treatise on India in 2nd century CE (c. 150 CE). The **Periplus of**

the Erythrean Sea and Ptolemy's Geography, both written in Greek, give information about the geography and ancient trade of India. The early Greek and Latin works by Strabo, Arrian, Pliny the Elder tell us about the Oceanic trade. Arrian wrote a detailed account of the invasion of India by Alexander on the basis of information from those who accompanied the campaign.

Most of the Greek writings about India are based on secondary sources, resulting in numerous errors and contradictions. Therefore, it is necessary to be cautious when using them. The Greeks were ignorant of the Indian languages and the customs of the country and their information is full of unbelievable facts and fancies. For instance, Megasthenes states that there were seven castes in India during the time of his stay; most plausibly confusing “castes” with “occupational classes”.

India figures in the foreign inscriptions like those of Darius. Herodotus and Ctesias got their information about India through the Persian sources. Herodotus in his **“Histories”** gives us much information about Indo-Persian relations.

The Chinese travellers visited India from time to time. They came here as Buddhist pilgrims and therefore, their accounts are somewhat tilted towards Buddhism. Mention may be made of Fa-Hsien/Fa-Hien who visited India in the 5th century CE, and Hsuan Tsang and I-Tsing who came in the 7th century. These Chinese Buddhist monks have left behind fairly detailed travel accounts which have been translated into English. They visited many holy places and Buddhist shrines. Fa-Hsien’s travels lasted from 399-414 CE and were confined to northern India. Hsuan-Tsang left his home in 639 CE and spent over 10 years travelling in India. Fa-Hsien has described the political, social, religious and economic conditions during the Guptas and Hsuan Tsang, those during Harshavardhan’s times.



LEFT: Fa-Hien at the Ruins of Ashoka's Palace. Credit: Hutchinson's story of the nations. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Fa_Hien_at_the_ruins_of_Ashoka_palace.jpg).



RIGHT: A Depiction of the Chinese Monk Xuan-Zang/Hiuen-Tsang on his Journey to India. Location: Tokyo National Museum. Credit: Alexcn. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Xuanzang_w.jpg).

In the later periods some Arabs also left their accounts about India. These Arab scholars such as Abu Rihan better known as Al-Beruni, the most famous among them, who belonged to the region of Khive (modern Turkmenistan) and was a contemporary of Mahmud of Ghazni, visited India to learn about its people and study Indian texts in their original language. His observations are based on his knowledge of Indian society and culture which he acquired through literature. For this he studied Sanskrit. However, he does not give any political information of his times. But, his *Tahqiq-i-Hind* is truly encyclopedic in nature and covers topics like Indian scripts, sciences, geography, astrology, astronomy, philosophy, literature, beliefs, customs, religions, festivals, rituals, social norms and laws. His work is a valuable historical source for the 11th century India and he was the 1st to have identified the initial year of the Gupta era. The Arabs and Indians were involved in the Oceanic trade and the Arab accounts such as that of Sulaiman mention India.

With the beginning of the 12th century we start getting the official histories commissioned by rulers or even written by courtiers. The earliest such example is *Tabqat-i-Nasiri* by Minhaj-ud-din Siraj. Subsequently, we find such important sources of medieval history as:

- *Tarikh-i-Firuz Shahi* by Zia-ud-din Barani,
- *Gulshan-i-Ibrahimi* by Muhammad Quasim Farishta,
- *Ain-i-Akbari* and *Akbarnama* by Abu'l Fazal,
- *Tabqat-i-Akbari* by Nizammuddin Ahmad, and so on.

For the period of Shahjahan and Aurangzeb also we have enough court accounts. Indeed, for the modern period there is no dearth of historical material in several Indian languages as well as in English, French and Dutch.

Check Your Progress Exercise 2

- 1) What is archaeology? Enumerate the main archaeological sources for the reconstruction of ancient Indian history.

.....
.....
.....
.....
.....

- 2) Mark the following statements as right (✓) or wrong (✗).

- i) The history of the Indo-Greeks has been reconstructed solely on the basis of their coins. ()
- ii) The western Kshatrapa coins give us dates in the *Vikram* era. ()
- iii) The earliest punch-marked coins are only in silver. ()
- iv) Megasthenes spent time in the court of Pushyamitra Shunga. ()
- v) The tax-free lands granted to the *Brahmanas* were called *Agraharas*. ()
- vi) The Junagarh Rock inscription of Rudradaman was in a mixture of Prakrit and Sanskrit. ()
- vii) The Periplus of the Erythrean Sea (c. 80-115 CE) was written in Greek. ()

- viii) The coins of Vima Kadphises bear the figure of Vishnu standing beside a bull. ()
- ix) The Ashokan inscriptions were first deciphered in 1837 by James Princep. ()
- x) The Gupta kings issued a number of gold coins known as *dinaras*. ()
- 3) Write a note on the historical development of coinage in ancient India from the time of the Buddha till the Guptas.

.....
.....
.....
.....
.....

- 4) Elucidate what you understand by the *prashasti* inscriptions.

.....
.....
.....
.....
.....

- 5) Throw light on the historical significance of the travel accounts left by the Chinese Buddhist pilgrims Fa-Hien and Hsuan Tsang.

.....
.....
.....
.....
.....

1.5 SUMMARY

In this Unit you learnt about the different kinds of sources that historians use to study the past. Both archaeology and literary texts constitute important categories. Unfortunately, many of the archaeological excavations have not been published and there are thousands of inscriptions which await study. As a result, our information about the past is still not complete.

Archaeological excavations and explorations have shown that most parts of India were occupied during the Stone-Age period and the antiquity goes back to 1.6 million years. Much research has been done in the field of prehistory which shows that the human activities started in the subcontinent as early as two million years ago. Even in the Thar desert the human occupation goes back to about 90,000 years.

The discovery of the Harappan sites and the cities of Mohenjodaro and Harappa pushed back the antiquity of Indian culture and civilization by several thousand years. Similarly, the excavations and explorations in various parts of India have thrown important light on the history of agriculture in India. Now we know that agriculture began in India almost 8000 years ago. Also, the archaeological discoveries have shown that tradition of rock paintings in India goes back to more than 12,000 years.

Another important issue is that the historical texts and literary evidence cannot be dated with certainty. This is a cause for worry. Since much of ancient Indian literature is concerned with ritual and religion it becomes imperative to study them with caution and sift through the various layers to have some kind of temporal control.

1.6 KEY WORDS

- Archaeology** : The study of material remains to understand the past.
- Artifact** : An object made by a human being, typically one of cultural or historical interest.
- Brahmanical** : Of or pertaining to the Brahmins/*Brahmanas*, their doctrines, precepts, ethos or worship.
- Canonical** : If something has canonical status it is accepted as having all the qualities that a thing of its kind should have; prescriptive; normative.
- Chalcolithic Culture** : Culture which represents an age when both stone and copper tools were used.
- Classical** : Representing and showcasing an exemplary standard within a traditional and long-established form or style; relating to the ancient Greek or Latin literature, art or culture.
- Critical edition** : Close reading and detailed analysis of a literary work.
- Digambaras** : Members of one of the two main sects of Jainism which was formed as a result of the doctrinal schism in c. 80 CE and continues till date in southern India. The male ascetic members of this sect reject property-ownership and do not wear clothes.
- Eulogy** : A speech or piece of writing that praises someone or something highly; a kind of tribute.
- Fratricidal** : Relating to or denoting conflict within a family or organization.
- Harappan Civilization** : The bronze-age civilization which flourished (c. 3300-1300 BCE; mature period c. 2600-18800 BCE) mainly in the north-western regions of the Indian subcontinent: modern day India (Gujarat, Haryana, Punjab, Rajasthan, Uttar Pradesh, Jammu and Kashmir states) and Pakistan (Sindh, Punjab and Baluchistan provinces), having main cities like Harappa, Mohenjodaro, Lothal, Kalibangan among many others.
- Interpolation** : Later addition, usually in a text.
- Kali age** : The last of the four ages (*yugas*) the world goes

through as part of the cycle of time described in the Sanskrit scriptures; the other ages being *Satya*, *Treta* and *Dvapara*. It is associated with the demon Kali and is not to be confused with the goddess Kali. The “Kali” of Kali age means “strife”, “discord”, “quarrel” or “contention”. According to the Puranic sources Krishna’s departure marks the end of the *Dvapara Yuga* and the beginning of the *Kali* age.

Litany

- : A tedious recital or repetitive series.

Megalithic

- : Associated with the prehistoric monuments, usually burials, made of or containing large/massive stones.

Mesolithic

- : The intermediate period of the Stone-Age between the Palaeolithic and Neolithic periods, characterized by the use of microliths (small, fine stone tools).

Neolithic

- : The later period of the Stone-Age when ground or polished stone weapons and implements were used.

Nikaya

- : It is a Pali term meaning “volume”, “collection”, “assemblage”, “class” or “group”. It is commonly used to refer to the Buddhist texts of *Sutta Pitaka* but can also be used to denote the monastic divisions of *Theravada* Buddhism.

Paleolithic

- : The early phase of the Stone-Age, lasting about 2.5 million years, when primitive stone implements were used.

Pathas

- : “Recitations” or ways of chanting the Vedic *mantras*.

Prehistoric Period

- : The period between the use of the first stone tools about three million years ago by the Hominins and the appearance of the earliest writing systems about 5000 years ago.

Proto-historic Period

- : The transition period between prehistory and history during which a culture or civilization has not yet developed its own writing but the other cultures have noted its existence in their writings. Citing an example, the Celts and the Germanic tribes in Europe are regarded to have been proto-historic when they began figuring in the earliest Greek and Roman sources.

Schism

- : A split/division between strongly opposed sections/parties caused by the differences in opinion or belief.

Shvetambaras	: The ascetic adherents of this sect of Jainism wear white clothes.
Sift	: Examining something thoroughly by isolating it from the other parts.
Silo	: A tall tower or pit on a farm used to store grain.
Temporal	: Related to time.

1.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

- 1) Consult Section 1.1
- 2) See Sub-section 1.2.1
- 3) See Sub-section 1.2.4
- 4) i) ✗, ii) ✓, iii) ✓, iv) ✗, v) ✗, vi) ✓, vii) ✗, viii) ✓, ix) ✗, x) ✗.

Check Your Progress Exercise 2

- 1) Refer to Section 1.3. Discuss coins, inscriptions and, monuments/monumental remains.
- 2) i) ✓, ii) ✗, iii) ✗, iv) ✗, v) ✓, vi) ✗, vii) ✓, viii) ✗, ix) ✓, x) ✓.
- 3) See Sub-section 1.3.1
- 4) See Sub-section 1.3.2
- 5) See Section 1.4

1.8 SUGGESTED READINGS

Basham, A. L. (2004). *The Wonder That Was India: A Survey of the History and Culture of the Indian Sub-continent Before the Coming of the Muslims*. Vol. 1, Pan Macmillan Limited.

Sharma, Arvind (2003). Did the Hindus Lack a Sense of History? *Numen*, vol. 50 (2), pp. 190-227, Brill.

Sharma, R. S. (2005). *India's Ancient Past*. Oxford University Press (OUP), New Delhi.

Singh, Upinder (2008). *A History of Ancient and Early Medieval India: From the Stone Age to the 12th Century*. Dorling Kindersley (India) Pvt. Ltd.

Thapar, Romila (2000). Historical Consciousness in Early India. *Cultural Pasts: Essays in Early Indian History*, Oxford University Press, New Delhi, pp. 155-172.

——— (2000). The Oral and Written in Early India” in *Cultural Pasts: Essays in Early Indian History*, Oxford University Press, New Delhi, pp. 195-212.

——— (2002). *The Penguin History of Early India: From the Origins to AD 1300*. Penguin Books India Pvt. Ltd., New Delhi.

Varadarajan, Lotika (1979). Oral Testimony as Historical Source Material for Traditional and Modern India. *Economic and Political Weekly*, vol. 14, No. 24, pp. 1009-1014.

UNIT 2 ARCHAEOLOGY AS A SOURCE AND PROMINENT ARCHAEOLOGICAL SITES*

Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Archaeological Sites and What They Are Made of
- 2.3 Methods: Archaeology in the Field
 - 2.3.1 Archaeological Exploration
 - 2.3.2 Archaeological Excavation
- 2.4 Analyzing the Evidence
 - 2.4.1 Dating Methods
 - 2.4.2 Production Techniques and Processes
 - 2.4.3 Trade and Exchange
 - 2.4.4 Environmental Archaeology
 - 2.4.5 Diet and Subsistence
 - 2.4.6 Investigation of Past Societies
 - 2.4.7 Underwater Archaeology
- 2.5 Some Prominent Archaeological Sites in the Indian Subcontinent
- 2.6 Summary
- 2.7 Key Words
- 2.8 Answers to Check Your Progress Exercises
- 2.9 Suggested Readings

2.0 OBJECTIVES

After reading this Unit, you will be able to learn:

- the nature of archaeology as a source for reconstruction of the past;
- what is an archaeological site and how it is formed;
- the methods of fieldwork and data collection in archaeology;
- about various techniques used in the examination of archaeological evidence and what they tell us about the past; and
- about prominent ancient archaeological sites in the Indian subcontinent.

2.1 INTRODUCTION

History and archaeology both share the same aim i.e. reconstruction of the past. However, they differ in the sources and methods they use to reconstruct the past. Unlike history which uses written sources for data, archaeology studies the material remains that have been created and used by humans since their appearance on earth. These material

* Dr. Deepak K. Nair, Assistant Professor, Department of History, SGND Khalsa College, University of Delhi, Delhi.

remains encapsulate the information about human behaviour and experience. These remains cover a wide range of things which people used and discarded, such as stone tools, structures, bricks, pottery, metal objects, sculptures, coins, inscriptions and so on which are preserved in the archaeological record both on the ground and under it. Among these the studies of coins and inscriptions have evolved their own sub-disciplines called numismatics and epigraphy respectively.

The human past is broadly divided into two parts:

- i) the historic, and
- ii) the pre-historic period.

The historic period begins from the time when writing appeared about 5000 years ago in different regions. Later on, as writing evolved it was used in a variety of ways such as maintaining records and in literary writings. However, the literate period is a very small part of the human past which helps us to investigate only the last few thousand years. Prehistory, therefore, begins from the origins of humankind over three million years ago. However, archaeology is not restricted to prehistory but studies all material remains left by humans through time. So, archaeologists study everything: from prehistoric tools to the items of daily use in the present.

The History of Archaeology

Every society engages with its past. The origins of archaeology can be traced to the fascination for beautiful old things and treasure-hunting to acquire such things. In the early stages of evolution of archaeology the Danish scholar C. J. Thomsen devised in 1817 the Three Age System of Stone age, Bronze age and Iron age. Archaeology of this time comprised of text-based archaeology and prehistoric archaeology that was not based on texts. This has, today, multiplied into several disciplines such as environmental archaeology, bio-archaeology, geo-archaeology and so on.

In India too archaeology had similar beginnings. It started with the adventurers' explorations during the colonial period that was followed by antiquarianism in which the sites and artefacts were studied without the rigorous methods of excavation and contextual analysis. In the beginning there was a dominance of text-aided archaeology. Sir Alexander Cunningham surveyed the length and breadth of northern part of the Indian subcontinent, trying to identify the cities and settlements mentioned in the accounts of the Chinese pilgrims such as Xuan Zang. In 1861 the **Archaeological Survey of India (ASI)** was established with Cunningham as its first Director-General. In the last decades of the 19th century a number of areas were surveyed, monuments were mapped and recorded. In the early 20th century with the efforts of Viceroy Lord Curzon due to his immense interest in archaeology and the respect for archaeological remains in the Indian subcontinent the Ancient Monuments Preservation Act was passed in 1904 for the preservation of ancient Indian monuments. The ASI conducted explorations and large-scale excavations in the Indian subcontinent under Sir John Marshall and Sir Mortimer Wheeler. After independence the ASI continued expanding its work. At the same time the discipline of archaeology began to be taught in several universities and academic institutions which were also active in the field of archaeological research. Today the ASI is a vast institution. There are also State Archaeological Departments and academic institutions like the Deccan College. Many universities teach archaeology and conduct excavations.

2.2 ARCHAEOLOGICAL SITES AND WHAT THEY ARE MADE OF

**Archaeology as a Source
and Prominent
Archaeological Sites**

Artefacts and Ecofacts

Archaeology bases itself on the study of the artefacts which are portable objects made or altered by humans. They provide important evidence such as the process of their production, the raw material out of which they are made, the technology involved in their production, the use of such objects etc. There is another kind of evidence which is non-artefactual: the organic and environmental remains known as ecofacts which can reveal many aspects of past human activity. They include animal bones, plant remains, soils and sediments etc. They help us understand aspects related to the environmental conditions in which people lived, variations in climate and their effects on humans, what kind of food they ate and so on.

The Archaeological Site

Artefacts, ecofacts, features and structures are found together on the archaeological sites. An archaeological site is a place which contains significant traces of human activity. In other words, these are places where human beings have done some activity in the past. The range of activities performed by humans is very wide: from cave paintings to the building of pyramids, Stonehenge, cities like Mohenjodaro to a small place where hunters-gatherers made their stone tools. Therefore, the investigation of archaeological sites for retrieving information becomes primary task of the archaeologists on the basis of which the past human life ways are reconstructed.

Now the question is: how archaeological sites are formed? In other words, how do they arrive at the condition in which the archaeologists discover them? There are two ways in which an archaeological site is formed:

- i) cultural, and
- ii) natural.

These are known as the formation processes. The cultural formation processes mean the activities human beings deliberately do at a place such as making and using artefacts, building houses or abandoning them, digging pits for garbage disposal, discarding things etc. or accidental activities such as the loss of things. The natural formation processes primarily govern the burial of the site through natural events. For example, the forces of nature like wind, water or animal activities bring changes in the nature of things that are present at a site after their abandonment by humans. Wind, sun, rain erode structures away slowly. The wind-borne sand or the sediments brought by the rains are gradually deposited on the site. Sometimes, sites or part of sites are buried by sand deposit caused by flooding.

The natural formation processes, also, are the agents which, sometimes, help in survival of the archaeological record. For example, the city of Pompeii in Italy was buried under the ash of volcano Mount Vesuvius when it erupted in 79 CE. The volcanic ash preserved the city as it was in 79 CE. Similarly, extreme cold conditions such as those of snowy areas like the Alps or the Arctic, or extremely dry conditions like those found in the deserts or mountains preserve organic materials. The examples include mummies found in the Egyptian pyramids or in the Andes mountains of Peru. Wetland marshy areas also preserve organic materials such as wood, plant products etc. such as at the site of Star Carr in Britain. Tropical climatic conditions with warm temperatures, humid and rainy

climate, acidic soil, high vegetal growth and insect activity do not allow the survival of ecofacts and can hamper the preservation of artefacts as well.



LEFT: An Archaeological Mound, Kalibangan, Rajasthan. Credit: Dr. Deepak K. Nair.

RIGHT: An Archaeological Excavation in Progress. Credit: Dr. Deepak K. Nair.

2.3 METHODS: ARCHAEOLOGY IN THE FIELD

Archaeological fieldwork is the first major step in the collection of archaeological evidence. There are two ways through which archaeological evidence is collected at the field:

- i) archaeological exploration or survey, and
- ii) archaeological excavation.

We will explore these below.

2.3.1 Archaeological Exploration

Archaeological exploration involves the investigation of archaeological sites on the basis of surface remains. In other words, the archaeologists investigate the sites without excavating them, on the basis of what is found on the surface. This exercise begins with trying to locate the archaeological sites. This is done by the archaeologists exploring a region or a particular area for finding these sites. For this they use different methods. Initially, the sites used to be identified through aerial surveys (using aeroplanes) by locating high mounds, crop patterns and circles etc. With the advancement of technology now this is done through satellite images and Geographic Information Systems (GIS). Even with the availability of many different ways of surveying the ground-survey is the most prominent method of finding and investigating archaeological sites. One such physical method is village-to-village survey in which a team of archaeologists goes to different villages and enquires about old settlements or remains of the past. This has been extensively used in India. Another method employs a carefully designed plan for a regional survey, dividing the whole area into a grid and subsequent divisions. The archaeologists thoroughly explore all the selected grids or sampled units for any kind of artefactual evidence or traces of human activity. Such intensive explorations help in the discovery of new archaeological sites. In the Indian subcontinent some large-scale archaeological surface surveys were:

- Vijayanagara Research Project (VRP),
- Vijayanagara Metropolitan Survey (VMS),
- Sanchi Survey Project (SSP),
- Two Rains Project etc.

The locations of sites are noted with Global Positioning System (GPS) so that their pattern of distribution can be shown on a map. The locational analysis is significant for understanding why people in the past selected certain areas for settlements. Further, the finds are carefully observed: their locations, nature, quantities are recorded, taking photographs and preparing drawings. Depending on the aims of the survey the artefacts can also be collected as samples for further analysis.

Archaeologists use a battery of scientific techniques to know the past in a better way in both explorations and excavations. In archaeological explorations the techniques such as Ground Penetrating Radar (GPR), Electric Resistivity Survey, Magnetometry are used which help us in knowing the nature of sites and buried structures or features without excavating the site. These techniques are known as “non-destructive” since they do not damage or alter the archaeological record in any way. In recent years the Light Detection and Ranging (LIDAR) method has been very significant in the discovery of buried structures. In this method an aircraft carrying a laser scanner over a particular survey area rapidly pulses laser beams to the ground. It creates an accurate picture of the ground according to its elevation. Through the help of various softwares then the buried structures are identified. This technique is immensely helpful in areas where there is very dense vegetation which is otherwise very difficult to explore. For example, the use of LIDAR has brought to light new structural complexes of Mayan civilization in Mesoamerica and a network of cities of the medieval Khmer Empire in Cambodia otherwise famous for the temple complex of Angkor Wat.

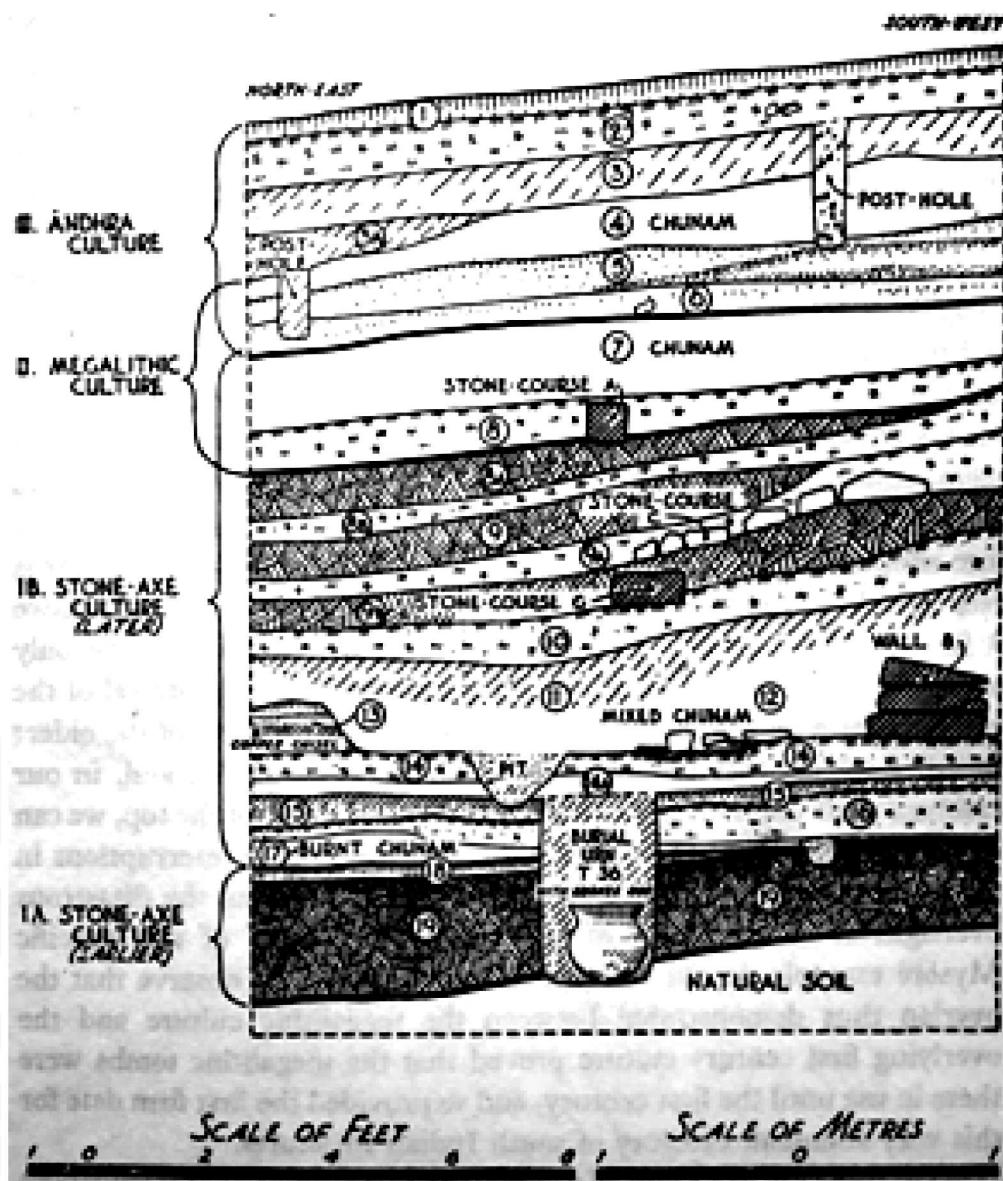
2.3.2 Archaeological Excavation

Surface explorations provide important results which can help us in answering certain questions about the past. However, the artefacts collected from the surface do not belong to their proper contexts as their appearance on the surface is a result of activities that have disturbed the original deposition. For example, erosion by rain, plowing, animal burrowing etc. may lead to displacement of the archaeological deposit near the surface. Therefore, for a deeper understanding of a site or various cultural phases in their contexts archaeological excavation is undertaken. It involves systematically digging of a site to carefully uncover material remains created and used by the human beings in the past.

At the archaeological sites the remains are found of various archaeological cultures. In 1929 V. Gordon Childe defined an archaeological culture as certain types of remains – pots, implements, ornaments, burial rites, house forms – constantly recurring together. These types of remains vary according to time and space. Therefore, they are identified as different archaeological cultures. Archaeological sites may be occupied by a single archaeological culture or in the case of longer occupation, where people lived for thousands of years, several archaeological cultures may be found. Successive occupations of different cultures reflect their chronological sequence. In the Indian subcontinent examples of various archaeological cultures include the Harappan culture, the Painted Grey Ware culture, Jorwe culture etc.

Archaeological excavation primarily employs the concept of stratigraphy to understand the chronological contexts of remains belonging to different periods. Derived from geology, the concept of stratigraphy is based on the process of stratification. In geology the sediments are deposited in layers or strata very slowly one over another. In this process the layer or stratum that was lower is considered to be deposited first and overlying successive layers deposited later. This is known as the **law of superimposition**. At the archaeological sites the strata containing cultural and natural debris build up more quickly than the geological ones but generally follow the law of superimposition.

Therefore, in archaeological sites the first signs of occupation are found at the lowest level and as the deposit reaches the top we see successive occupations with the most recent one near the surface.



Section from Brahmagiri, Karnataka, India, Showing Three Cultural Phases with Overlaps.
Credit: Sir Mortimer Wheeler, *Archaeology from the Earth* (1954), Reprinted by Munshiram Manoharlal Publishers Pvt. Ltd., New Delhi, 2004, p. 50.

Depending on the aims of excavators there are two primary ways in which archaeological sites may be excavated:

- i) Horizontal, and
- ii) Vertical.

The underlying notion of this is that broadly contemporary activities take place in wide horizontal space and changes in such activities occur vertically through time. Therefore, if we want to know in detail about a particular phase of the site or how people lived the site may be horizontally excavated. In horizontal excavation a large part of the site is excavated slowly to uncover contemporary structures and activity areas of a particular phase. Conversely, in vertical excavation small areas are excavated but they cut through the deposit down to the level of natural soil or when the site was occupied first. In this way vertical excavations are able to provide a glimpse of chronological changes at the

site through time. In other words, vertical excavations tell us about successive occupation of the site in the different cultural phases. Both types of excavations have their merits and limitations.

Archaeological excavation is a destructive process since it requires the removal of deposit to uncover things. It is an irreversible process in which once excavated the archaeological deposit cannot be restored. Therefore, archeologists take utmost care in excavating and recording the details of the evidence. After excavation the finds are processed for further studies.

Excavations cause a variety of material remains to be unearthed from a bygone era. These material remains tell us the kinds of houses people lived in. Several questions may be asked of this data such as:

- Were the structures made of burnt bricks or wattle-and-daub?
- Did they have wells, tanks, bathrooms, toilets, storage spaces, drainage, shrines or places of worship etc. in their settlements?
- What sort of tools did they use?
- Were they engaged in long-distance trade?
- What may have been their social and political systems?
- How did they treat their dead?

These and many more aspects of past human life are brought forth by material remains the people created and used.

The evidence collected through archaeological exploration and excavation helps us immensely in understanding the past. The first process after the collection of artefacts and other remains is classification. Classification is basically making sense of the whole material assemblage by ordering them according to various attributes such as its raw material, dimensions etc. For example, the classification of pottery according to attributes such as size, shape, the clay used, surface treatment and so on helps us in understanding the range of functions they may have served – from cooking and serving to ritualistic use. Similarly, the classification of other objects such as beads, metal objects, stone tools and so on provide us with the quantitative and qualitative information for further analysis.

2.4 ANALYZING THE EVIDENCE

You will now see how the artefacts and ecofacts are studied to draw archaeological conclusions. This section describes how the date of a site is determined, what was traded, the flora and fauna in the surroundings etc.

2.4.1 Dating Methods

The primary question that arises in archaeological research is how old a particular object or a site is? In other words, what time they belong to? Through traditional methods such as typology, stratigraphic sequence and stylistic analysis broad conclusions can be drawn about the chronology. This is known as relative dating. Annual growth of the rings in trees, also, can be used for dating which is known as the Tree-Ring Dating or Dendrochronology. However, with the availability of ever advancing new scientific techniques we are able to now date with much more accuracy. The first breakthrough took place in 1950 when Willard Libby developed a method of dating organic materials

such as wood or bone called the **Carbon-14 Dating**. The most recent and advanced method is the Accelerator Mass Spectrometry (AMS) dating technique which requires a very small sample to produce results. This technique can date organic materials that are up to 50,000 years old. There are other dating techniques such as Potassium-Argon, Uranium-series, Fission track, Thermo-luminescence (TL) and Optical dating, Electron spin resonance (ESR) and so on that use different materials and can provide dates for contexts ranging from 50,000 to five million years ago. The basic premise for dating an object or sample is to apply the dates obtained using these techniques to the whole deposit or context in which it was found. Thus, the entire deposit is as old as the sample.

Dating Method	Material	Range
Tree-ring	Wood with visible tree-rings	About 10,000 years BP (Varies in regions)
Radiocarbon	Organic materials that contain carbon	Up to 50, 000 years BP
Potassium-Argon/Argon-Argon	Volcanic rocks	Older than 80,000 years BP
Uranium-series	Rocks that are rich in calcium carbonate; teeth	10,000-500,000 years BP
Thermoluminescence (TL dating)	Fired ceramics, clay, stone or soil	Up to 100,000 BP
Paleomagnetic dating	Magnetized sediments, volcanic lava, clay fired to 650-700° c.	Very old deposits from hundreds of thousands years to millions of years ago
Electron Spin Resonance (ESR)	Bone, shell, tooth enamel	From thousands of years to up to about a million years ago
Fission track	Certain types of rocks, and minerals, obsidian, glass, mica etc.	From hundreds of thousands years to millions of years ago

Adapted from Renfrew, C. and P. Bahn, 2012.

2.4.2 Production Techniques and Processes

A variety of objects are recovered through exploration and excavation. Archaeology informs us how they were made i.e. their production processes and how they were used. Artefacts can be divided into two categories:

- i) unaltered, and
- ii) altered.

Unaltered objects do not experience a change in their nature after being fashioned into an object, such as stone tools, wood objects, plant and animal fibers. Altered objects include materials that change their nature and form during production process. Almost all such materials require the control of heat in their production, like pottery and metal objects.

Ethnoarchaeology and experimental archaeology help us in finding out how such objects were made and what their function was. The production process for pottery is now described as an example. Clay is malleable and is used to make pottery. The pottery production process passes through many stages of production: from acquiring the clay to ultimately achieving the finished product. With the understanding developed through ethnoarchaeology and experimental archaeology we can find out many details of the production process like whether the pottery was handmade or wheel-made? Why are some pots in shape and clay different from the others? For what purposes were the different pots used? Such questions may be answered through ethnoarchaeology and experimental archaeology.

Ethnoarchaeology

Ethnoarchaeology is a method adopted in archaeology to explain the archaeological record by studying the present communities. In this method each and every process related to a particular activity is observed. By keenly observing each detail of the process attempts are made to understand what kind of pattern these activities might generate in the archaeological record. For example, studying the traditional pottery production techniques in the present may help in understanding the ancient pottery. Especially, understanding the *Chaîne opératoire* (sequence of operations) is useful in explaining patterns on ancient pottery left by various processes during stages of production. Ethnoarchaeological methods have been employed to a wide variety of studies in archaeology that include inquiring about subsistence techniques such as hunting and gathering, and they are more popular in understanding various craft traditions. Thus, ethnoarchaeology is, essentially, studying the practices of communities in present to answer archaeological questions.

Experimental archaeology

Under experimental archaeology to understand past behavioral processes the archaeologists attempt to replicate experimental reconstructions under controlled conditions. Unlike ethnoarchaeology where the tasks done by the communities manufacturing particular objects in the present are observed the archeologists themselves perform these experiments. Experimental archaeology has been successfully applied in stone knapping which has helped in understanding how flakes were removed during the reduction of core for making stone tools. Several other studies have been done which include the reconstruction of processes such as those to explain the transporting of huge blocks of dressed rocks and erecting the structure at Stonehenge, England.

Microscopic techniques such as Scanning Electron Microscope (SEM) study the minute traces or microwear patterns left on the objects that can be compared with modern experiments to determine how they were made. Minute traces of the organic residues like plant juices may be found on tools if they were used for harvesting them. These, too, can be studied.

Different techniques can be used on the same artefacts to answer different questions. Sometimes, metal objects are made by alloying or mixing two metals. This can be found out by using Trace Element Analysis. The microscopic metallographic examination of ancient metal objects tells us the technique used to make the artefact – casting, cold hammering etc. The sheer variety in such objects informs us about ancient technology and the level of knowledge about pyrotechnology. The rustless Mehrauli iron pillar dated to c. 4th century CE in the Qutub complex, Delhi is a good example of the efficiency of such technology in the past.

2.4.3 Trade and Exchange

Through archaeology we can understand how different communities engaged in trade – whether by land or sea. When we find artefacts made of raw materials that are not found locally it may be concluded that they came through trade. The distribution pattern of such objects would tell us about the geographic extent the trade was spread in. Techniques such as Petrographic Examination and Trace Element Analysis, X-Ray Fluorescence (XRF) and X-Ray Diffraction (XRD) can distinguish local from non-local objects and also point to the region they may have belonged to originally. For example, through such studies on amphorae found at sites in India which were involved in Indo-Roman empire trade around 2000 years ago we can narrow down the region within the Roman empire from where different amphorae reached India. Such studies also inform us about ancient trade routes and networks.

2.4.4 Environmental Archaeology

Human beings from the incipient stages of evolution have been living in continuously changing environments. Several Ice Ages are examples of fluctuating environments in the past that have affected them. Archaeology helps us in reconstructing past environments on a global scale. The sediments on sea floors and stratified ice sheets contain evidence of thousands of years of climatic history. Through the isotopic analysis of cores taken from deep sea-beds and stratified ice-sheets past temperatures and patterns of rain and wind can be found out.

Archaeo-botany and Archaeo-zoology: Archaeological sites contain plant and animal remains which tell us how human beings subsisted on these and coexisted with them. The study of ancient plant remains is called archaeo-botany. Plant remains found at sites can be categorized as macro and micro botanical remains.

- i) Macro-botanical remains are large enough to be seen by naked eye. They survive generally in the form of grains, seeds, fruits etc. which may have been accidentally or deliberately charred. During excavations they are found by dry or wet sieving of excavated soil through a wired mesh. Another technique is called Floatation in which soil samples are mixed in water and lighter organic materials that float are separated, dried and identified. Sometimes, the plant remains or their impressions can be seen in the clay of pottery, bricks or remains of wattle-and-daub. Wood pieces are also recovered. To identify their species their microstructure can be analyzed through Scanning Electron Microscope (SEM).
- ii) The micro-botanical remains cannot be seen by naked eye and they are extracted from soil samples taken systematically at the site. There are two major analyses of the micro-botanical remains:
 - a) pollen analysis or Palynology, and
 - b) phytolith analysis.

The study of the pollen grains provides information of fluctuations in vegetation through time, such as if there were forested lands with more trees or open grasslands. Phytoliths are minute particles of silica derived from the cells of plants which survive well in ancient sediments. They are found generally in hearths and layers of ash, pottery, plaster, stone tools and even on animals' teeth. The study of Phytoliths tells us about the uses humans made of different plants.

The environment can also be reconstructed through animal remains found at the sites. The study of ancient faunal remains is called zooarchaeology. Animal remains are divided into:

- microfauna, and
- macrofauna.

Microfauna include a wide variety of insectivores, rodents, bats, birds, fish and mollusks etc. They provide important information regarding environment and climatic change. This is concluded on the basis of environment conditions they require to breed and thrive on. Macrofauna includes remains of large animals that are commonly present at sites. They help in ascertaining the number of species present in the immediate environment of the site. They are not considered to be very good indicators of the environment as they can thrive on a wide variety of plants and can withstand wide variations in temperature.

2.4.5 Diet and Subsistence

Apart from the information about environment, plant and animal remains also provide a window into the diet and subsistence of people in the past. Diet refers to the pattern of consumption over a long period of time. Through a number of ways we can deduce what formed the diet of human beings in the past. The preserved macro-botanical remains by desiccation, water-logging or charring may include grains such as wheat, barley, maize, rice and so on. Through chemical residue analysis of cooking pots cooked food can be identified in terms of whether it belongs to cereals or legumes. For example, analysis of some amphorae sherds proves that these storage vessels actually contained wine and olive oil.



Amphorae Sherds Excavated from Pattanam, Kerala. Photo Courtesy: Kerala Council for Historical Research, Thiruvananthapuram.

Like plant remains, animal remains also provide information about human diet. However, the bones of animals may arrive due to different reasons at the site and it is not necessarily related to human consumption. Therefore, only those animal bones which show cut marks from butchering are considered to have been consumed.

In very rare instances human remains directly provide evidence of what the human beings ate as processed and prepared food. Information about individual meals can be achieved through the analysis of stomach contents and the study of fossilized human dung. The stomach contents rarely survive except in case of mummified bodies. Similarly, fossilized dung, known as ‘coprolite’ and its study ‘coprology’, provides important information about what people ate in the past. Coprolites contain a variety of macro remains such as bone fragments, plant fibers, bits of charcoal, seeds, remains of fish, birds, shell fragments and so on.

Bioarchaeology

As seen in the previous paragraph fossilized human remains can provide information on

what was eaten. Other techniques such as isotopic techniques are used on bones in order to determine the nutrition gained from food. This is based on the study of chemical signatures left by different foods in the body that are reflected in teeth and bones. The comparison of the ratio of nitrogen isotopes ^{15}N and ^{14}N , ^{15}N and ^{13}C indicate the vegetarian and meat-based diet. Similarly, the age of weaning in children can be determined through the analysis of nitrogen, as has been done at the site of Inamgaon which is discussed in a later section. The concentrations of element strontium also provide data on diet. Vegetarian diet is indicated by higher concentrations of strontium in bones.

Burials are a very important source of information about several elements including the status in society. Generally, burials include grave-goods that can indicate the status of an individual and their comparison can tell us about social difference. The presence of valuable objects among them suggests high status of an individual. One of the means to ascertaining value is by investigating if the grave furniture is rare, if it was traded from far-off distances. For example, in the royal graves of Ur in Mesopotamia the Harappan long-barrel carnelian beads have been found. In chiefdom and state societies this difference is highly marked. High status may be achieved by an individual during his lifetime. However, high status can also be ascribed as in the case of heredity. The child burials with rich grave goods reflect such cases.

2.4.6 Investigation of Past Societies

Archaeological methods also help to investigate the social aspects of past human societies. For comprehending the nature and scale of past societies anthropologist Elman Service devised a four-fold classification of societies:

- i) mobile hunter-gatherer groups,
- ii) segmentary society,
- iii) chiefdom, and
- iv) the state.

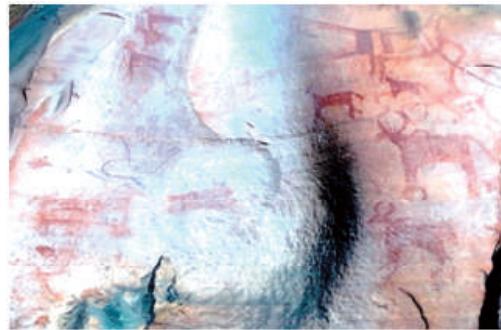
Although criticized by the archaeologists, this framework, with some modifications, can still be broadly used. Based on it their settlement analysis and excavations would suggest differences in the nature of societies to which they belonged. The settlements of mobile hunter-gatherer groups are temporary camps, the segmentary society's permanent villages, chiefdom's fortified centres, and the ritual centers and the state society are marked by cities, towns and frontier defenses.

Archaeology has also made progress in revealing the cognitive aspects of humans in remote past. In other words, we can now attempt to understand the ways in which people thought in past by systematically analyzing the material evidence they left behind. The development of language which requires symbols and sounds to be used in a particular manner hints towards the human beings' ability to communicate using such symbols. Some archaeologists think that some sort of language was developed by the time of *Homo-habilis* refined further by *Homo-erectus* as reflected by their symmetrical and beautiful acheulian hand-axes. The ability to produce such hand-axes in large number suggests the presence of an effective communication system. To consciously bury their dead is also considered to be an evidence of belief systems of the past.

The study of rock art provides valuable information about the past. The paintings and carvings may depict a wide range of subject matter: from subsistence practices, human figures, animals, plants, family scenes, social activities to ritualistic aspects. Paintings also depict abstract patterns which may be symbolic of their beliefs. Archaeologists have postulated several explanations regarding the rationale for making rock art.



LEFT: Paintings in Rock Shelter 8, Bhimbetka near Bhopal, Madhya Pradesh. ASI Monument No. N-MP-225. Credit: Dr. Abhishek Anand



RIGHT: Paintings in Rock-Shelter 3, Bhimbetka. Credit: Dr. Abhishek Anand.

Religion is an integral part of identities and archeology helps in understanding past religious practices. It does so using different categories of evidence from religious structures such as the temple of Apollo at Delphi, the Sanchi *stupa* etc. Some figurines and sculptures found during excavations at archaeological sites may have been worshipped. Spaces are identified such as those of worship by the presence of sculptures of deities that are, iconographically, well known. Excavations also identify scared spaces where worship may have taken place, like the prehistoric shrine of Baghor I which has been discussed in one of the following sections.

Recently, molecular genetics has impacted archaeology. The DNA analysis of ancient burials is being used to reconstruct genetic relationships of various social groups and lineages. The genographic projects based on the DNA analysis have established that the whole human population on earth has a shared ancestry which goes back to the branch of *Homo-sapiens* which evolved in Africa and migrated out of it. The Strontium Isotope Analysis has also been used in understanding migrations in the past. The Strontium isotopes vary in different geographical regions which leave distinct chemical signatures on teeth which help in mapping out movement of the people.

2.4.7 Underwater Archaeology

Underwater archaeology is a branch of archaeology which investigates settlements that have been submerged under water, such as settlements located near lake-sand coasts in the past. Some parts or the entire area of old ports may be submerged underwater due to rise in the levels of the sea or lake. Underwater archaeology also investigates shipwrecks. Experienced marine archaeologists take multiple dives to explore, excavate and record the remains of old settlements, ports or shipwrecks. From the Bronze age itself various geographic regions were connected through maritime trade networks. Shipwrecks of trading ships are like time capsules which sank with a wide range of products they were carrying. Many shipwrecks have been discovered in the Mediterranean sea which provide evidence of trade between the regions of Europe, north Africa and the Levant from the Bronze age onwards. Through underwater archaeology the submerged parts of old Alexandria, Egypt and shipwrecks like the Titanic have been investigated. In India also marine archaeologists have discovered a site of the late Harappan period – Bet Dwarka – where some stone structures and stone anchors were found.

Geophysical methods are also used in underwater archaeology to find sites on the seabed. Operated from a ship, techniques such as Multi-beam Side-Scan Sonar Survey produce clear images and accurate measurements of shipwrecks.



LEFT: Attribution: Hristakiev. Source: European Science Photo Competition 2015. Creative Commons Attribution-Share Alike 4.0 International License (Wikimedia Commons).

RIGHT: A Shipwreck Engine Measured by Underwater Archeology. Credit: Dwi sumaiyyah makmur. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Underwater_archaeology.jpg).

Check Your Progress Exercise 1

- 1) What are the differences between archaeological exploration and excavation?

.....
.....
.....
.....
.....
.....
.....
.....

- 2) Enlist the various sources used in archaeology.

.....
.....
.....
.....
.....
.....
.....
.....

2.5 SOME PROMINENT ARCHAEOLOGICAL SITES IN THE INDIAN SUBCONTINENT

Now we are going to look at the archaeological evidence at some prominent sites in the Indian subcontinent. It is important to remember that archaeology is not restricted to any time period and is based on material culture from its earliest creation to the contemporary.

● **Bhimbetka**

Bhimbetka is located in Raisen district of Madhya Pradesh and 45 km. to the south-east of Bhopal. It was discovered by V. S. Wakankar in 1957. It is a complex of over 700 caves and rock shelters in the sandstone formations of the Vindhyan hills. Excavations here revealed a long sequence from the lower Palaeolithic to Mesolithic in the form of regular occupation. After Mesolithic some human presence and activities continued intermittently till the historical period. Among all the historical phases here the Mesolithic period is very well-defined with its microlithic industry and known for its magnificence of rock art which primarily consists of paintings done in red ochre; although white, yellow and green have also been used. These paintings represent naturalistic, figurative and abstract art and include a wide variety of scenes such as:

- hunting,
- fishing,
- honey collection,
- dancing, and
- also some scenes that might be related to shamanism.

The earliest dates for the Mesolithic period at Bhimbetka go back to the 7th millennium BCE. Due to its universal historic significance it was inscribed on the UNESCO's World Heritage list in 2003.

● **Mehrgarh**

One of the earliest village settlements in the Indian subcontinent, Mehrgarh is located in the Bolan valley in the northern part of the Kacchi/Kachhi plain near Baluchistan in present-day Pakistan. Excavations here have revealed seven occupational levels scattered over an area of 200 ha. Period I and Period II are Neolithic and the subsequent ones are Chalcolithic. The beginning of the Neolithic in the early levels here has been placed in the 8th millennium BCE. People lived in the houses of small rectangular rooms made of handmade mud-bricks. Among stone tools, Neolithic ground or polished axes were found; although the blade-based microliths were abundant. Grinding stones, some bone tools such as awl, needles etc. were also found.

Elaborate burials were found at a necropolis. They had a niche cut into one side of the pit in which the body and grave goods were placed. It was sealed by a wall of mud bricks. The body was covered with red ochre which may indicate a fertility related belief. Among grave goods offered were bitumen lined baskets, copper and shell beads. A few skeletons were found with headbands and belt like waist ornaments made of shell beads and necklaces made of steatite beads. Turquoise and Lapis Lazuli beads also occur which could have come from northern Baluchistan and Afghanistan. The shell would have originated in the Makran coast, some 500 km. away. This shows that very early in history exchange networks were established.

The early periods revealed remarkable information about the subsistence activities, especially the transition from hunting-gathering towards an increasing reliance on animal domestication and agriculture. A rich variety of plant remains were collected from here, the harvesting of which is also made evident by stone blades set in bitumen, probably used as sickles. The animal remains in the Neolithic period show clear transition from hunting to animal domestication.



The Archaeological Site of Mehrgarh, Photo of a Monument in Pakistan Identified as the BA-28.
Credit: mhtoori. Source: Wikimedia Commons (<https://commons.wikimedia.org/wiki/File:Mehrgarh.jpg>).

- **Harappa**

Harappa is located in the Punjab province of Pakistan. It was the first site of Harappan civilization to have been excavated in 1920; hence the civilization was named after it. The size of the site is about 150 ha. It was located on the bank of river Ravi but now it flows 10 km. away. Among several mounds of Harappa the citadel mound is located on a higher area and the lower mound of the lower town to its south-east. The roughly parallelogram shaped citadel was surrounded by a mud brick wall and with large towers and gates. A **Granary**, 18 circular working floors and workmen's quarters have been identified to the north of the citadel (Mound F). Areas of the lower town revealed various workshops where shell, copper, agate artefacts were made. Parts of the lower town have revealed houses, drains, bathing platforms etc. At Harappa there are two cemeteries – Cemetery H and R-37 to the south of the citadel mound.



The Archaeological Site of Harappa. ASI Monument No. N-PB-32. Credit: Shefali11011. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Ancient_Harappa_Civilization.jpg).

- **Mohenjodaro**

The largest site of Harappan civilization – Mohenjodaro – is located in the Sindh province of Pakistan, 5 km. away from the river Indus. The size of the site is about 200 ha. encompassing two mounds – the citadel and lower town. The citadel area was built over an artificial mud and mud-brick platform over an area of 400×200 m. On this mound the **Great Bath** is an outstanding structure which represents the engineering

skill of the Harappan people. It is 14.5 m. long, 7 m. wide and 2.5 m deep. at its maximum. Other structures on this mound have been identified as a **Granary**, **College of Priests** and an **Assembly Hall**. The lower town was divided into major blocks by four wider streets that ran towards north-south and east-west. Remains of many houses of different sizes were found in the lower towns, possibly indicating the difference in status. In one of these houses was found the famous **Priest-King** stone sculpture. A large number of shops and copper working, bead making, pottery making, shell working workshops were also identified. Apart from bathrooms in the houses it has been estimated that there may have been over 700 wells in Mohenjodaro which befits the estimated population of the city also.



Excavated Ruins of Mohenjodaro with the Great Bath in the Foreground and the Granary Mound in the Background. Credit: Saqib Qayyum. Source: Wikimedia Commons (<https://commons.wikimedia.org/wiki/File:Mohenjo-daro.jpg>).

● Dholavira

Dholavira is located on an island called Khadir Bet in the Rann of Kutch, Gujarat. With over 100 ha., it is one of the largest mature Harappan sites in the Indian subcontinent. Unlike other Harappan sites at Dholavira sandstone instead of burnt bricks has been predominantly used in the construction of structures. Plan of the settlement also differs with other settlements, as instead of the dual divisions of citadel and lower town here it is divided into three:

- i) castle-bailey,
- ii) middle town, and
- iii) the lower town.

An open area between the castle-bailey and the middle town has been identified as a stadium possibly used for ceremonial purposes. The city boasted of a unique water harvesting and management system. It is located between two streams on which dams were built to channelize water into several large and rectangular reservoirs that were located around castle-bailey, middle town and the lower town. Encasing these three

divisions of the settlement and reservoirs was a fortification wall which had rectangular bastions on each corner.



LEFT: Tunnel at Dholavira. **RIGHT:** Meshed Well, Dholavira. Credit: Nagarjun Kandukuru. Source: Wikimedia Commons ([https://commons.wikimedia.org/wiki/File:Tunnel_\(16496213599\).jpg](https://commons.wikimedia.org/wiki/File:Tunnel_(16496213599).jpg)).

● **Taxila**

Taxila is located to the east of the Indus in Rawalpindi, Pakistan. Its importance is reflected from Buddhist, Jain and Brahmanical as well as Greco-Roman texts. Archaeologically it is the most extensively excavated ancient city site in the Indian subcontinent. There are three mounds at Taxila – Bhir, Sirkap and Sirsukh – which were successively laid out in the early historic period. Bhir is the site of oldest city which began around 6th-5th centuries BCE and continued up to c. 2nd century BCE. During the Mauryan period the plan of Taxila was haphazard. Four streets, five lanes and associated houses have been identified. Some civic planning is indicated by the refuse bins in open spaces and streets. The 2nd settlement was established at Sirkap in c. 2nd century BCE. It was characterized by gird-planning with perfectly straight main street. The settlement spanned for four centuries and represented pre Indo-Greek, Indo-Greek and Shaka-Parthian periods. At the end of the 1st century CE the Kushanas laid out a new city on the site of Sirsukh.



Remains of Buddhist Monastery at Jaulian, a World Heritage Site at Taxila. Photo of a Monument in Pakistan Identified as KPK-14. Credit: ClicksByMohammadOmer. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Jaulian_Buddhist_Monastery_in_Taxila.jpg).

● **Amaravati**

Amaravati is located in Guntur district of Andhra Pradesh. It marked the site of Dhanyakataka: the capital of the later Satavahanas. It flourished from c. 3rd century

BCE to 3rd century CE. There was a citadel surrounded by a huge mud fortification. There was a major Buddhist establishment here. The *stupa* here was the largest in Andhra region and was referred to as a *mahachaitya*. The site of the *stupa* has its own history of research, excavations and subsequent removal of the beautiful sculpted panels and pillars of marble in the late 18th and 19th centuries. This resulted in the dismemberment of the *stupa* and now only the remains of the drum of brick *stupa* and a few marble railings exist at the site.

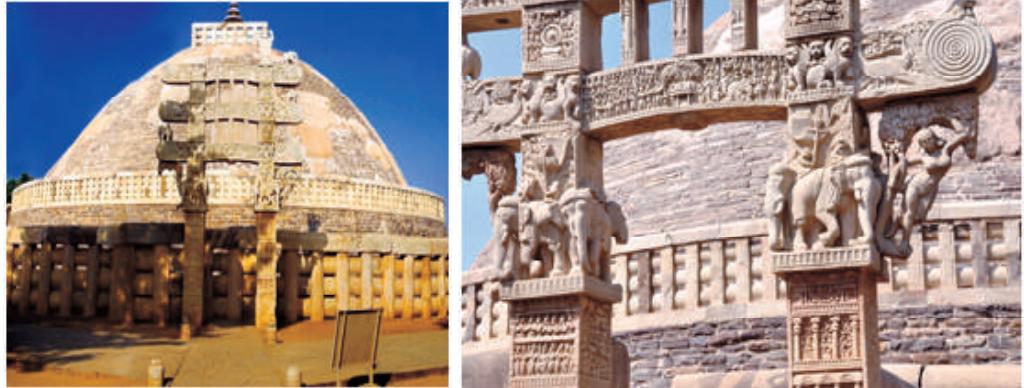


LEFT: Amravati *Stupa* Relief. Credit: Soham Banerjee. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Amaravati_Stupa_relief_at_Museum.jpg).

RIGHT: The Great Departure of Prince Siddhartha (Gautam Buddha), Amravati. Credit: sailko. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Andhra_pradesh,_la_grande_dipartita,_da_regione_di_amaravati,_II_sec.JPG).

● Sanchi

Sanchi, located in Raisen district of Madhya Pradesh, is one of the most important Buddhist monastic complexes in India. It is not associated with an event in the life of the Buddha, but grew to prominence from the time of the Mauryan emperor Ashoka in c. 3rd century BCE. He is believed to have built the original *stupa* and installed a monolithic Ashokan column at the site. Later, it received patronage not only from royal dynasties such as the Shungas and Satavahanas but also lay devotees. In the Sanchi complex there are several *stupas* but three of them are conspicuous due to their large size and state of preservation. Others are smaller in size and include both structural and monolithic or votive *stupas*. *Stupa I* is the largest which is also referred to as the Great *Stupa*. In the excavations no relics were found in this *stupa* but in terms of architectural features it is the most elaborate. Its diameter is 36.60 m. and its height without the railing and umbrella is 16.46 m. The stone masonry dome of the *stupa* encases an earlier brick *stupa* that was probably constructed by Ashoka. It is surrounded by a stone railing (*vedika*) which has four *toranas* (monumental gates) on four cardinal directions. These *toranas* were erected by the Satavahanas. There is a variety of subjects carved on each *torana* which include scenes from the *Jatakas*, scenes from the life of the Buddha, events in the subsequent history of Buddhism and so on.



LEFT: The Great *Stupa* at Sanchi which contains the Relics of the Buddha, Eastern Gateway. Credit: Raveesh Vyas. Source: <https://www.flickr.com/photos/32392356@N04/3311834772>. Photo Courtesy: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Sanchi_Stupa_from_Eastern_gate,_Madhya_Pradesh.jpg).

RIGHT: Ornamental Pillar Leading to the Sanchi Dome. ASI Monument No. N-MP-220. Credit: Amigo&oscar. Source: Wikimedia Commons ([https://commons.wikimedia.org/wiki/File:Ornamental_Pillar_leading_to_Sanchi_Dome_\(N-MP-220\).jpg](https://commons.wikimedia.org/wiki/File:Ornamental_Pillar_leading_to_Sanchi_Dome_(N-MP-220).jpg)).



LEFT: Depiction of Maya's Dream at Sanchi, *Stupa* 1 Eastern Gateway. Credit: Biswarup Ganguly. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Maya%27s_dream_Sanchi_Stupa_1_Eastern_gateway.jpg).

RIGHT: Procession of King Prasenajit of Kosala Leaving Shravasti to Meet the Buddha, Sanchi *Stupa* 1 Northern Gateway. Credit: Biswarup Ganguly. Source: Wikimedia Commons (https://commons.wikimedia.org/wiki/File:Procession_of_Prasenajit_of_Kosala_leaving_Shravasti_to_meet_the_Buddha.jpg).

Stupa II is located little away from the main complex. Its *vedika* is elaborately carved with decorative motifs but it is devoid of any *toranas*. The excavations yielded relics of several Buddhist teachers. From *stupa* III the relics of Sariputra and Maudgalayana – the two foremost disciples of the Buddha – were found. Apart from these monuments there are remains of a large monastery. Sanchi lay along an important trade route near a very prosperous merchant town of Vidisha. The patronage it enjoyed is evident by numerous donative inscriptions. That it remained important in the Gupta period also is attested by the presence of early structural temples at the complex. It flourished till the 13th century CE and after that fell into desolation until it was discovered by General Taylor in the early 19th century CE.

Archaeology does not limit itself to the ancient period. Apart from the above mentioned archaeological sites there are some excavated sites belonging to later periods as well. Lal Kot and Vijayanagar are prominent among such sites. The excavation at Lal Kot, Mehrauli, Delhi revealed two cultural periods:

- i) Period I dated from the middle of the 11th century to the end of the 12th century CE.

- ii) Period II belonged to the early Sultanate period dated from the end of the 12th century to the end of the 14th century CE. The first Turk Sultans made their capital in the Lal Kot area itself, which was later known as *Dihli-i-kuhna* (meaning Old Delhi) when new capital cities were constructed in the plains of Delhi. The remains of medieval Vijayanagar have been unearthed at its capital Hampi, Karnataka. The Vijayanagara Research Project (VRP) and Vijayanagara Metropolitan Survey (VMS) were two large scale archaeological projects that focused on the research on Vijayanagar.

Check Your Progress Exercise 2

- 1) What evidence do we have of early centres of domestication of barley and rice in the Indian subcontinent? Discuss in the context of Mehrgarh.

.....

.....

.....

.....

.....

.....

- 2) Describe various features of art and architecture at the prominent archaeological sites related to Buddhism.

.....

.....

.....

.....

.....

.....

2.6 SUMMARY

Archaeology helps in reconstructing the past through the study of material remains left by humans. The data is collected in the field by surface explorations by field-walking and employing a wide range of non-destructive scientific methods. Excavation at the archaeological sites informs us about artefacts and ecofacts in their proper contexts. After excavations, the analysis of a wide variety of evidence is done through methods and techniques adopted from social sciences and natural sciences. They enable us in dating the evidence, understanding past human behaviour, settlements, production processes and past technologies, trade and exchange, subsistence and diet, and aspects of social life such as status, religion, rituals and so on. The importance of archaeology as a source is not limited to the ancient period but it can be extended to the material remains of the medieval and even contemporary periods.

2.7 KEY WORDS

CE

: Common Era. It is used in the place of *Anno Domini* (AD): the year in which Jesus Christ was born. Since the use of this era is not only restricted to the Christian world but used commonly worldwide it was labeled as the Common Era.

**History of India
from the Earliest
Times Upto C. 300 C.E.**

BCE

: Before Common Era. It is used in place of Before Christ (BC).

BP

: Before Present. Used in the radiocarbon dating the present has been fixed at year 1950. For example, 4950 BP will be converted as 3000 BCE.

Acheulian

: A widespread early stone-age culture named after the site of St. Acheul in France. It included multi-purpose stone tools such as hand-axes and cleavers. It was spread in Africa, Europe and Asia. It is dated from about over 1.65 million years ago to 100,000 years ago.

Assemblage

: A group of artefacts found together in a single context. It may also refer to the entire collection of artefacts belonging to an archaeological culture, like Harappan assemblage or a particular type of artefact like pottery assemblage.

Debitage

: Waste material generated during production of stone tools and other crafts such as stone bead-making.

Microwear

: Patterns of edge damage due to use, polishing or abrasion that can be analyzed only through the microscope. Microwear analysis indicates how the tools may have been used.

Petrography

: The study of the composition of rocks. In archaeology it is generally used in the analysis of ceramics by identifying mineral components of clay to find out from where the clay was brought.

Pyro-technology

: The intentional and controlled use of fire by humans. Heat treatment is essential in various craft productions for which certain temperatures are to be achieved and maintained as required.

Typology

: It is a method of arranging types of artefacts into sequences according to improvements in design and efficiency in the case of functional tools and changes in form and decoration in the case of pottery and jewellery.

Wattle-and-daub

: House walls that are made of wicker or reeds woven around upright wooden posts and thick layers of mud are applied on it.

2.8 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

- 1) You should be emphasizing on the non-destructive aspect of surface survey and

mention the techniques used in it. A limitation of exploration is that the surface finds are not in their original contexts. To understand the artifacts and ecofacts in their proper context the sites are excavated. See the Section on exploration and excavation.

- 2) You should be enlisting various methods and techniques which help in extracting information from evidence. See Section 2.4.

Check Your Progress Exercise 2

- 1) Consult the Sub-sections on Mehrgarh within Section 2.5.
- 2) Consult the Sub-sections on Amravati and Sanchi within Section 2.5.

2.9 SUGGESTED READINGS

Chakrabarti, D. K. (2001). *India, an Archaeological History: Palaeolithic Beginnings to Early Historic Foundations*. New Delhi: Oxford University Press.

Drewett, P. L. (1999). *Field Archaeology: An Introduction*. London: UCL Press.

Greene, K. (2002). *Archaeology: An Introduction*. London and New York: Routledge.

Renfrew, C. and P. Bahn. (2012). *Archaeology: Theories, Methods and Practice*. 6th ed. London: Thames & Hudson.