ANCIENT HISTORY OF INDIA

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1. Stone Age

Geographical and Climatic Context of Stone Age India

- Earliest fossil remains of archaic Homo sapiens in India have been found in the Narmada Valley.
- Humans appeared in the Cenozoic Era of the Geological Time Scale.
- Archaeological Survey of India (ASI) discovered an ancient pre-historic camping site at an altitude of 4,200 metres in Nubra Valley, Ladakh (part of the erstwhile state of Jammu & Kashmir).

Lower Palaeolithic Cultures: Core tools, key sites (e.g., Soan, Acheulian)

- Lower Palaeolithic Age: Earliest period of the Stone Age in India.
- Core Tools: Dominant tool type, made by flaking away outer parts of a stone nodule. Examples include Handaxes and Cleavers.
- Chopper-Chopping Tools: Made on pebbles, characteristic of the Soanian culture.
- Raw Materials: Primarily Quartzite; also Jasper, Chert, and Sandstone.
- Paleolithic Blade: A flake tool with length more than twice its width.
- Acheulian Culture (Handaxe-Cleaver Culture): Characterized by bifacial handaxes and cleavers, dominant in Peninsular India.
- Soanian Culture (Pebble Culture): Characterized by chopper-chopping tools, dominant in Punjab (Potwar Plateau, Soan Valley).
- Key Sites & Locations:
  - Isampur: Gulbarga district, Karnataka. A stone tool manufacturing center, located along the Kamta Halla stream.
  - Nevasa: Maharashtra.
  - Didwana, Jayal, Singhitalav: Rajasthan.
  - Lalitpur: Uttar Pradesh (Bundelkhand region).
  - Gudiyam Cave: Tamil Nadu.
  - Attirampakkam: Tamil Nadu.
  - Soan Valley: Punjab (now Pakistan).
  - Bhimbetka: Madhya Pradesh (rock shelters).
  - Hunsgi: Karnataka.
- General Characteristics: Tools often found in areas with brown-red soil.

Major Neolithic Sites and Cultures (e.g., Mehrgarh, Burzahom, Chirand, Sanganakallu)

- Mehrgarh: Neolithic site in Bolan Valley, Balochistan (Pakistan). Earliest evidence of agriculture (wheat, barley) and animal domestication.
- Burzahom: Neolithic site in Kashmir (J&K, India). Known for pit dwellings and dog burials with masters. Not associated with rock-cut shrines.
- Chirand: Prominent Neolithic site in Bihar. Noted for a rich assemblage of bone tools (made of antlers).
- Sanganakallu: Neolithic site in Karnataka. Associated with ash mounds (burnt cow dung, indicative of pastoralism).
- Hallur: Neolithic site in Karnataka.
- Brahmagiri: Neolithic and Megalithic site in Karnataka.
- Koldihwa: Neolithic site in Uttar Pradesh (Belan Valley). Earliest evidence of rice cultivation.
- Navdatoli: Chalcolithic site located in Madhya Pradesh.
- Ganeshwar: Chalcolithic site in Rajasthan. Known for rich copper artefacts.
- Adichanallur: Megalithic burial site in Tamil Nadu.
- Kurnool: Palaeolithic/Mesolithic cave sites in Andhra Pradesh.
- Budihal: Neolithic site in Karnataka, also known for ash mounds.
- Senuaar: Neolithic and Chalcolithic site in Bihar.
- Chandra-ketugarh: Historical period site in West Bengal, known for terracotta art.
- Ahar (Dhoolkot): Chalcolithic site in Rajasthan, known for the Ahar-Banas culture; Dhoolkot is an archaeological mound within the Ahar complex.

Major Palaeolithic Sites in India (e.g., Bhimbetka, Hunsgi, Kurnool Caves)

- Bhimbetka (Madhya Pradesh):
  - Discovered by Dr. Vishnu S. Wakankar (V.S. Wakankar).
  - Discovery period: 1957-1958.
  - Known for rock shelters and prehistoric rock paintings, spanning Palaeolithic to Mesolithic periods.
  - Features the 'Auditorium Cave'.
  - Rock Shelter III F-23 is a significant site within Bhimbetka, associated with Wakankar's work.
- Palaeolithic Sites in Rajasthan:
  - Singi-Talav.
  - Indargarh.
  - Luni Basin (e.g., Didwana, Budha Pushkar) – source of Palaeolithic tools.
- Palaeolithic Sites in Gujarat:
  - Examples: Kot, Hirpura, Hadol.
  - Indargarh is NOT located in Gujarat.
- North to South Arrangement of Major Palaeolithic Sites:
  - Bhimbetka (Madhya Pradesh)
  - Nevasa (Maharashtra)
  - Hunsgi (Karnataka)
  - Renigunta (Andhra Pradesh)

Mesolithic Age: Transition, microliths, hunter-gatherer societies

- Mesolithic Age (Middle Stone Age): Represents a transitional period between the Palaeolithic (Old Stone Age) and Neolithic (New Stone Age).
- Defining Characteristic: Marked by the widespread use of microliths, which are extremely small, often geometric, finely flaked stone tools.
- Tool Materials: Microliths were typically crafted from fine-grained siliceous rocks such as chalcedony, chert, agate, jasper, flint, and quartz, replacing the coarser quartzite used in earlier periods.
- Economy & Society: Primarily continued a hunter-gatherer subsistence strategy, but also saw the beginning of animal domestication.
- Earliest Animal Domestication Evidence: Found at Bagor (Rajasthan) and Adamgarh (Madhya Pradesh), dating to the Mesolithic period.
- Burial Practices: Mesolithic people generally practiced inhumation (burying the dead), sometimes with grave goods; cremation was not a common practice.

- Key Mesolithic Sites & Findings:
    - Bagor (Rajasthan): One of the largest and most significant Mesolithic sites, known for rich microlithic assemblages and the earliest evidence of animal domestication. Excavated by V.N. Misra (Deccan College, Pune). An 'Engraved Upper-Palaeolithic/ Mesolithic Core' has also been reported.
    - Adamgarh (Madhya Pradesh): Another important site with early evidence of animal domestication.
    - Mahadaha (Uttar Pradesh - Ganga Plain): Renowned for multiple human burials (including collective burials) with associated grave goods (e.g., bone tools, ornaments). Often studied through salvage excavations.
    - Sarai Nahar Rai (Uttar Pradesh - Ganga Plain): Contains human burials, evidence of communal hearths, and indications of violent death.
    - Damdama (Uttar Pradesh - Ganga Plain): Features numerous burials, hearths, and bone tools.
    - Lekhahia (Uttar Pradesh - Vindhyas): A site yielding microliths and burials.
    - Paisra (Bihar): A Mesolithic site with microlithic tool findings.
    - Theri Sites (Tirunelveli, Tamil Nadu): Distinctive microlithic sites found on red sand dunes (called 'teri' in Tamil) in South India.
    - Tilwara (Rajasthan), Sojat (Rajasthan), Dhaneri (Rajasthan): Other notable sites for microlithic culture.
    - Bhimbetka (Madhya Pradesh): Famous for Mesolithic rock shelters and vibrant rock paintings depicting animals and human activities.
- Salvage Excavation: A type of archaeological excavation conducted rapidly and under challenging conditions, typically to rescue and document archaeological remains from sites facing imminent destruction (e.g., by dam construction like Nagarjunakonda, or urban development).
- Geographical Order of Selected Sites (West to East): Birhanpur (Madhya Pradesh) -> Mahadaha (Uttar Pradesh) -> Lekhahia (Uttar Pradesh) -> Paisra (Bihar).

Mesolithic Rock Art and Burial Practices (e.g., Adamgarh, Bagor, Langhnaj)

- Mesolithic Rock Art Discovery: Archibald Carlleyle discovered the first rock paintings in India in 1867-68 at Sohagighat, Mirzapur, Uttar Pradesh.
- Bhimbetka Rock Paintings: Discovered by archaeologist V.S. Wakankar (1957-58) who noticed rocks from a train window. It is a UNESCO World Heritage site.
- Mesolithic Art Characteristics: Depict hunting, gathering, fishing, dancing, social life. Common colors: red (ochre), white, yellow, green. Animals are often naturalistic; humans are more stylistic.
- Orissa Rock Art: Paintings and engravings typically exist in the same shelters.
- Bagor (Rajasthan):
    - Large Mesolithic site in Rajasthan.
    - Located on the Kothari River (a tributary of Banas).
    - Associated with the Mahasati dune (Mahasatyea), where remains were found.
    - Evidence of planned burials, some with microliths and early copper objects.
- Adamgarh (Madhya Pradesh): Significant Mesolithic rock art and habitation site.
- Langhnaj (Gujarat):
    - Important Mesolithic site.
    - Yielded multiple human skeletons (at least 14) in flexed positions.
    - Grave goods included microliths, shell beads, and animal teeth.
- Burial Practices - Uttar Pradesh Sites:
    - Damdama: Recovered 41 human burials; notable for a grave with three human skeletons and another with four human skeletons in a single grave.
    - Mahadaha: Discovered multiple burials with bone artifacts (e.g., harpoons, arrowheads, ornaments) as grave goods.

- Sarai Nahar Rai: Features distinct extended burials and evidence of dog burials with humans.
- Lekhahia (Vindhyas): A rock shelter yielding the maximum number of human skeletons (approx. 17) from the Vindhyas region.

- Megaliths: Primarily identified as ancient burial sites, often marked by large stones.
- Belan Valley: Known for an Upper Palaeolithic bone-made idol of a mother goddess.
- Archaeological Sites and Districts (Rajasthan):
  - Singhi Talav - Nagaur
  - Tilwara - Barmer
  - Bijak ki Pahari (part of Bairat) - Jaipur
  - Nagari - Chittorgarh

Middle Palaeolithic Cultures: Flake tools and regional variations

- Middle Palaeolithic Period: c. 150,000 BP to c. 40,000 BP (dates vary regionally and chronologically).
- Key Characteristic: Dominance of flake tools, representing a technological advancement over the core tools of the Lower Palaeolithic.
- Primary Raw Materials: Finer-grained stones like chert, jasper, chalcedony, and sometimes quartzite, which allowed for better control and sharper edges.
- Tool Types: Primarily scrapers (side, end, round), points, borers, and awls. Handaxes and cleavers from the Lower Palaeolithic largely disappeared or became less significant.
- Levallois Technique: A distinctive method of prehistoric stone flaking where a tortoise-shaped core was carefully prepared, and then a pre-determined shape and size flake was struck off. This technique was crucial for producing sharp, efficient flake tools.
- Major Sites in India: Nevasa (Maharashtra), Didwana (Rajasthan), Belan Valley (Uttar Pradesh), Son Valley (Madhya Pradesh), Luni Valley (Rajasthan), and various sites in the Narmada Valley.
- Cultural Evolution: Often seen as a cultural phase that evolved from the Acheulian tradition of the Lower Palaeolithic, with a shift towards more specialized and lighter tools.

Neolithic Revolution: Origin of agriculture, animal domestication, settled life

- Neolithic Age is also known as the New Stone Age.
- Characteristic features included ground & polished stone tools, agriculture, animal domestication, pottery, and settled life.
- Cultivation of cereals first started in the Neolithic Age.
- The earliest evidence of agriculture and animal domestication in the Indian subcontinent has come from Mehrgarh (Balochistan, Pakistan).
- Evidence from Mehrgarh dates back to around 8000 BCE, showing cultivation of wheat and barley, along with animal domestication, indicating settled life.
- The earliest evidence of rice cultivation in the Indian subcontinent is found at Lahuradeva (Uttar Pradesh, c. 9000-8000 BCE), and earlier accepted at Koldihwa (Belan Valley, Uttar Pradesh, c. 6500 BCE).
- Lahuradeva is also recognized as an early farming site located near a lake.
- Neolithic features like agriculture and settled life did not appear simultaneously across all parts of the subcontinent, exhibiting regional variations.
- The first metal used by man, marking the transition from the Neolithic to the Chalcolithic period, was Copper.

Neolithic Tools, Pottery, and Habitations

- Neolithic tools primarily consisted of highly polished stone tools (celts), often ground and pecked, used for agriculture and other purposes.
- Bone tools were also a feature of the Neolithic period, notably found at Burzahom in Kashmir.
- Neolithic pottery was initially handmade, later wheel-made, characterized by coarse grey, red, and black burnished wares, sometimes with incised designs.

- Neolithic habitations indicate settled village life, with constructions of wattle-and-daub houses or mud-brick structures.
- Pit-dwellings are a distinctive habitation feature of the Neolithic site of Burzahom (Kashmir).
- Ash mounds, often associated with cattle-penning and seasonal occupation, are characteristic of Neolithic sites in South India.
- The first metal used by humans was copper, leading to the Chalcolithic (Copper-Stone) Age.
- The Jorwe culture, a significant Chalcolithic culture, covered most of modern Maharashtra, with the notable exception of the coastal Konkan region.
- The Pravara-Godavari valleys are considered the nuclear zone of the Jorwe culture.
- Jorwe culture sites practiced settled agriculture (cultivating cereals like wheat, barley, rice) and animal husbandry, rather than shifting agriculture.
- Key Chalcolithic sites in Maharashtra include Jorwe, Nevasa, Daimabad, Chandoli, Songaon, Inamgaon, Prakashe, and Nasik.
- Prominent Chalcolithic sites in Rajasthan include Ahar (Banas culture) and Gilund.
- Important Chalcolithic sites in Madhya Pradesh include Malwa, Kayatha, and Eran.

Palaeolithic Age: Periodization and Chronology

- Stone Age periods are primarily identified and differentiated based on the type and technology of stone tools used.
- Stone Age cultures in India exhibited significant regional variations and did not evolve uniformly or in a neat unilinear fashion across the subcontinent.
- Robert Bruce Foote, a geologist and archaeologist, discovered the first Palaeolithic tool (a handaxe) in India at Pallavaram near Madras in 1863.
- The 'Three Age System' (Stone, Bronze, Iron) was coined by C.J. Thomsen based on the collection in the Copenhagen Museum.
- Palaeolithic Age Key Sites & Characteristics:
  - Sohan/Soan River Valley in Punjab is a prominent site for Lower Palaeolithic pebble tools.
  - Bhimbetka Caves in Madhya Pradesh contain evidence from Lower Palaeolithic through Mesolithic periods, famous for rock shelters and early rock art.
  - Hathnora, located in the Narmada Valley, is the site where the partial skull fossil of Homo erectus (known as Narmada Man) was discovered in India.
  - Homo sapiens first appeared during the Upper Palaeolithic period.
  - Lakhu Udyar in Uttarakhand is a significant prehistoric rock art site.
- Key Dating Methods & Related Disciplines:
  - Radiocarbon (^{14}C) dating: Measures the decay of Carbon-14 in organic materials to determine their age. It was pioneered by Willard Libby (W.F. Libby) and is primarily used for dating archaeological materials.
  - Dendrochronology: A dating method based on the analysis of tree-ring patterns.
  - Archaeological Stratigraphy: Governed by the Law of Superposition, which states that in any undisturbed sequence of deposits, older layers lie beneath younger ones.
  - Palaeobotany: The scientific study and analysis of prehistoric plants and vegetation.
  - Palaeography: The study of ancient and historical writing systems and scripts.
- Other Stone Age Period Sites (for general context):
  - Mesolithic Age: Bhimbetka Caves (also particularly noted for Mesolithic period habitation and art).
  - Neolithic Age: Burzahom (Kashmir) is a key site.
  - Chalcolithic Age: The Banas Valley (Ahar-Banas culture) is a major Chalcolithic region.

Social and Economic Organization during the Stone Age

- Paleolithic Age (Old Stone Age):
  - Economic: Primitive food collection (hunting-gathering). Nomadic lifestyle.
  - Social: Small, egalitarian bands. Division of labor based on sex and age.
- Mesolithic Age (Middle Stone Age):
  - Economic: Advanced food collection (intensive hunting, fishing, broad-spectrum foraging). Used micro-liths. Semi-sedentary camps.
  - Social: Slightly larger groups, still largely egalitarian. Early burial practices.
- Neolithic Age (New Stone Age):
  - Economic: Food production (agriculture and animal domestication). Sedentary village life. Pottery and polished stone tools developed.
  - Social: Permanent settlements, larger communities. Beginnings of property ownership and social differentiation.
- Chalcolithic Age:
  - Economic: Continued food production. Introduction of copper metallurgy alongside stone tools. Early village farming cultures.
  - Social: More developed village societies; evidence of increased craft specialization.
- Bronze Age:
  - Economic: Advanced agriculture, widespread use of bronze tools and weapons. Long-distance trade.
  - Social: Urbanization, development of complex state-level societies, clear social stratification.
- Language Groups:
  - The Munda language group belongs to the Austric language family.

Stone Age Art and Religious Beliefs in India

- Stone Age art in India primarily consists of rock art (pictographs and petroglyphs) found in rock shelters and caves.
- Bhimbetka (Madhya Pradesh) is a UNESCO World Heritage Site renowned for its extensive pre-historic rock paintings from the Paleolithic and Mesolithic periods.
- Bhimbetka paintings depict animals (bison, tigers, elephants), human figures, hunting, dancing, and daily life scenes, using natural pigments like red (hematite) and white (kaolin).
- The first rock paintings in India were discovered by Archibald Carlleyle in 1867 at Sohagighat (Mirzapur district, Uttar Pradesh).
- Lakhajoar, Kathotia, and Jaora are other prominent pre-historic rock art sites in India.
- Themes in Stone Age art often reflect early religious beliefs such as animism (spirit in nature), ancestor worship, and ritualistic practices.
- Megalithic burials (associated with the later Stone Age/Chalcolithic transition) provide evidence of belief in an afterlife and ancestor reverence.
- Common types of Megalithic burials include Dolmens (upright stones supporting a capstone), Sarcophagi (stone coffins), Cist burials, Urn burials, and Cairn circles.
- Magdalenian refers to a cultural phase of the Upper Paleolithic period in Western Europe, known for its sophisticated art, and is not a type of Megalithic burial.

Upper Palaeolithic Cultures: Blade-burin industry, bone tools, early rock art

- Period: c. 40,000 – 10,000 years BP, representing the final stage of the Palaeolithic Age.
- Associated Hominids: Characterized by the presence of anatomically modern humans (Homo sapiens).
- Tool Industry (Blade-Burin): Dominance of 'blade' tools (long, narrow flakes with parallel sides) and 'burins' (chisel-like tools used for engraving).
- Raw Materials: Tools primarily fashioned from fine-grained siliceous rocks such as chert, jasper, and chalcedony.
- Other Tool Types: Included various scrapers, points, and awls alongside blades and burins.
- Bone Tools: A key innovation, with tools made from bone, antler, and ivory. Examples

include spearheads, harpoons, needles, and awls.
- Key Upper Palaeolithic Bone Tool Site: Muchchatla Chintamanu Gavi (part of the Kurnool Caves complex in Andhra Pradesh).
- Early Rock Art: Marks the beginning of rock paintings and engravings in India.
- Prominent Rock Art Sites: Bhimbetka (Madhya Pradesh) and Adamgarh hills.
- Artistic Themes: Predominantly depicted large wild animals (e.g., bison, tiger, rhinoceros, deer) and geometric patterns, typically in red and green ochre.
- Other Significant Upper Palaeolithic Sites: Renigunta (Andhra Pradesh), Patne (Maharashtra), Baghor I (Madhya Pradesh).
- Note on Bone Implements: While significant in the Upper Palaeolithic, prominent Mesolithic sites like Mahadaha and Sarai Nahar Rai (Uttar Pradesh) are also well-known for diverse bone implements (e.g., arrowheads, ornaments) and human burials.

2. Indus Valley Civilization

Artistic Expressions: Seals, Sculpture, Pottery, and Terracotta Figurines

- Seals:
  - Predominantly made of Steatite, but also chert, copper, terracotta, faience, agate.
  - Over 500 seals discovered.
  - Most common motif: Unicorn. Other animals include bull, rhinoceros, elephant, tiger.
  - Pipal tree shape found on some seals.
  - Bull-seal found at Harappa.
  - Pashupati Seal (seated figure surrounded by animals) found at Mohenjodaro.
  - Cow was NOT represented on seals or terracotta art.
  - Considered one of the most distinctive artifacts of the Harappan Civilisation.
- Sculpture (Stone):
  - Bearded man (Priest-King) bust found at Mohenjodaro, made of Steatite.
  - Two significant male torsos found at Harappa, made of stone (one in red sandstone, another in grey stone), showcasing advanced anatomical understanding.
- Sculpture (Bronze):
  - Made using the Lost Wax Process (Cire Perdue).
  - Dancing Girl figurine found at Mohenjodaro.
  - Other bronze figures include buffalo with uplifted head (Mohenjodaro).
- Terracotta Figurines:
  - Made from baked clay.
  - Mother Goddess figurines are common, especially from Mohenjodaro and Harappa.
  - Toy models include carts, wheels, rattles, birds, monkeys, dogs, cattle.
  - Terracotta plough model found at Banawali.
  - Cow was NOT represented in terracotta art.
  - Models of boats found from Mohenjodaro and Lothal.
- Pottery:
  - Mainly plain red ware, painted black-on-red ware.
  - Glazed pottery is a rare but earliest example of its kind in the ancient world (from IVC).
  - Perforated pottery also found.
  - Ochre Coloured Pottery (OCP) is considered to be one of the older pottery types.
  - Ceramics found at Ganeshwar belonged to Red Ware (associated with pre-Harappan/Chalcolithic cultures).

Chronology and Phases (Early, Mature, Late Harappan)

- Mehrgarh: Shows continuous occupation from the 7th millennium BCE, preceding the Indus Valley Civilization.
- Indus Valley Civilization phases:
  - Early Harappan (Pre-Harappan): c. 3300-2600 BCE.

- Mature Harappan: c. 2600-1900 BCE.
- Late Harappan (Post-Harappan): c. 1900-1300 BCE.

- Early Harappan Culture: Oldest archaeological remains of a ploughed field found at Kalibangan (Early Harappan phase).
- Transition from Early to Mature Harappan: Events like large-scale burning at some sites, abandonment of certain settlements, or a shift in the course of the Hakra river do not represent a complete cultural break, but rather a transition or regional developments.
- Mature Harappan Culture: Characterized by extraordinary uniformity in artefacts (pottery, seals, bricks, weights) across its vast geographical spread.
- Abandonment of sites: Most mature Harappan sites in the Cholistan region were abandoned around C. 1800 BCE.
- Late Harappan Culture: Marked by a decline in uniformity and changes in construction techniques, often showing deterioration from Mature Harappan standards.
- Dadheri is a Late Harappan site located in Punjab, India.
- Ahar (Banas) Culture: A Chalcolithic culture contemporary with the Harappan culture.
- Chronological development of Chalcolithic cultures (approximate):
  1. Kayatha (c. 2300-2000 BCE)
  2. Prabhas (c. 2000-1400 BCE)
  3. Malwa (c. 1700-1400 BCE)
  4. Chirand (c. 1600-1000 BCE)
- Jorwe Culture: Key sites include Daimabad, Inamgaon, and Prakash. Navdatoli is a site of the Malwa culture, not Jorwe.
- Radiocarbon dating (Carbon-14 dating) is used to estimate the age of organic materials like fossils.

Continuity and Legacy of Harappan Culture

- Ahar or Banas culture was contemporary with Harappan culture.
- Ahar (Banas) culture is a Chalcolithic culture.
- Ahar culture sites show evidence of copper metallurgy (e.g., copper slag, copper sheets).
- Ahar culture sites feature small stone blades (microliths) for cutting and piercing.
- Ahar culture, being Chalcolithic, did not use iron axes.
- Anarta tradition or Anarta ware represents a Chalcolithic culture.
- Ceramics similar to the Anarta tradition were first reported from Surkotada.
- Anarta ware is found in the Banaskantha and Sabarkantha districts of Gujarat.
- Chalcolithic cultures such as Malwa, Jorwe, and Kayatha cultures show influence from the Harappan culture.

Discovery, Nomenclature, and Geographical Extent

1. Discovery:
   - A. Cunningham (1870s): First to excavate Harappa but failed to recognize its significance as an ancient civilization.
   - Harappa (1921): Excavated by Daya Ram Sahni.
   - Mohenjo-Daro (1922): Excavated by Rakhaldas Banerji (R.D. Banerji).
   - Sir John Marshall: Director General of ASI (Archaeological Survey of India) during major IVC excavations; officially announced the discovery of IVC in 1924.
   - J.H. Mackay: Directed excavations at Chanhudaro.
   - M. Wheeler (Mortimer Wheeler): Introduced scientific excavation methods, including three-dimensional measurement, in India.
7. Nomenclature & Key Characteristics:
   - Also known as Harappan Civilization, named after Harappa, the first discovered site.
   - Referred to as "Meluha" in Mesopotamian records.
   - Primarily an urban civilization; witnessed the first cities in the subcontinent.
   - Suggested political centralization from large cities (e.g., Harappa & Mohenjo-Daro) with alternative capitals.
   - IVC was a Bronze Age civilization; iron was not known.

- Earliest known use of script (right to left, undeciphered).
- Earliest known use of stone as a medium for sculpting.
- Pottery: Typically red, with designs painted in black.
- Fire altars: Present at some sites (e.g., Kalibangan, Lothal).

10. Origin Theories:
    - Indigenous Evolution: Amalananda Ghosh and M. Rafique Mughal identified similarities between pre-Harappan (Early Harappan) and mature Harappan cultures, suggesting indigenous development.
    - External Influence (Older Theories): Migration of people from Sumer (E.J.H. Mackay) or diffusion of 'idea of civilization' from West Asia (Mortimer Wheeler).
3. Geographical Extent:
    - Vast area, not confined to the Indus river valley.
    - Boundaries:
        - Northernmost: Manda (Jammu & Kashmir, India).
        - Southernmost: Daimabad (Maharashtra, India).
        - Easternmost: Alamgirpur (Uttar Pradesh, India) on Hindon River (Ganga-Yamuna Doab).
        - Westernmost: Sutkagendor (Baluchistan, Pakistan).
    - Key Regions/Countries: Spread across parts of Afghanistan, Baluchistan, Sindh, Punjab (Pakistan); Punjab, Haryana, Rajasthan, Gujarat, Western Uttar Pradesh, Jammu & Kashmir (India).
    - Major Sites in Pakistan: Harappa, Mohenjo-Daro, Ganweriwala, Chanhudaro, Kot Diji.
    - Major Sites in India: Dholavira, Rakhigarhi, Lothal, Kalibangan, Banawali, Ropar, Alamgirpur, Hulas, Mandi, Desalpur.
    - Southern IVC sites (e.g., in Kathiawar Peninsula, Gujarat) generally appear to be of later origin than the core Indus sites.
    - Gujarat has a large number of IVC sites; Rajasthan has fewer (e.g., Kalibangan).
    - Uttar Pradesh sites include Alamgirpur, Hulas, Mandi.
9. Sources of Knowledge:
    - Primary source: Archaeological excavations (as script is undeciphered).
    - Surveyor's role in excavation: To make a general plan and contour map of the site.

Economic Life: Agriculture, Animal Husbandry, Crafts, and Trade Networks

- Staple crops: Wheat and Barley.
- Other cultivated grains: Lentil, Chickpea, and Sesame.
- Rice cultivation: Evidenced at Rangpur, Lothal, and Hulas. It was not found abundantly in all areas.
- Sugarcane was not cultivated by the Indus Valley people.
- Evidence of ploughing: Terracotta models of the plough were found at Banawali (Haryana) and sites in Cholistan.
- Ploughed field: Archaeological evidence of a ploughed field from the mature Harappan phase was found at Kalibangan. This field had two sets of furrows crossing at right angles, suggesting the simultaneous cultivation of two different crops.
- Domesticated animals: Cattle, sheep, goat, buffalo, pig, dog. Bones of fish and fowl were also found.
- The horse was not known to the people of the Indus Valley Civilization, or its domestication is highly doubted.
- Animals depicted but not necessarily domesticated or native to India for domestication: Elephant, rhinoceros, tiger, and bull.
- Crafts demonstrated a high degree of standardization, possibly due to state control (as opined by Kenoyer).
- Bead-making: Beads were made of gold, copper, shell, lapis lazuli, ivory, and various semi-precious stones.
- Specialized centers for bead manufacture: Chanhudaro (tools, furnaces, and beads in various stages of preparation were found).

- Indicators of a craft production center: Raw materials (e.g., stone nodules, whole shells), unfinished objects, rejects, and waste material.
- Shell objects: Specialized centers for making shell objects include Balakot, Nageshwar, and Lothal.
- Limestone and chert blades: Mass-produced at Sukkur and Rohri Hills (Sindh) and supplied to various Harappan settlements.
- Textiles: Earliest known evidence of dyeing and embroidery of cotton textiles found at Mohenjo-daro. Cotton was a major crop.
- Common toilet and cosmetic objects: Bronze mirrors, ivory combs, and antimony rods. Hair dyes were not likely known.
- Main exports of the Indus Valley people: Wheat, Barley, and Cotton.
- Gold: Was imported by Indus Valley cities, not exported. D.D. Kosambi opined that gold came from Kolar and Hatti gold mines.
- Trade with Mesopotamia: Established by the depiction of a bull on seals. Mesopotamian texts refer to the Indus region as 'Meluha'.

Major Sites: Distinctive Features and Discoveries (e.g., Mohenjo-Daro, Harappa, Lothal, Dholavira, Rakhigarhi, Kalibangan)

- **Mohenjo-Daro (Sindh, Pakistan):**
  - Located on the right bank of the Indus River in Larkana District.
  - Means "Mound of the Dead".
  - Features: Great Bath (earliest public water tank, part of citadel complex, approx. 12x7x3 meters), Great Granary, Bronze Dancing Girl, Priest King statue.
  - Close to Kot Diji.
  - Not known for extensive water storage systems like Dholavira.
- **Harappa (Punjab, Pakistan):**
  - Located on the Ravi River (old bed).
  - First site to be excavated; excavated by Daya Ram Sahni.
  - Features: Six granaries, Cemetery 'H' culture, workmen's quarters, nude male torso sculpture.
  - Identified with Rigvedic 'Hariyupiya'.
- **Lothal (Gujarat, India):**
  - Located on the Bhogavo River (a tributary of Sabarmati) at the head of the Gulf of Cambay, Saurashtra region.
  - Excavated by S.R. Rao.
  - Major port town, known as the "world's first tidal port" (dockyard).
  - Features: Dockyard, bead-making factory, evidence of rice husk, fire altars (rectangular and circular for animal sacrifice), twin burials (dual interment/so-called 'Sati' burial), depiction of a ship on a seal, granary.
  - Drains were made on both sides of roads, mud drains found.
  - No evidence of plough use (found at Kalibangan).
- **Dholavira (Gujarat, India):**
  - Located in Kadir Island, Rann of Kutch; inscribed as a UNESCO World Heritage Site in 2021.
  - Excavated by R.S. Bisht.
  - Features: Unique tripartite division (Citadel, Middle Town, Lower Town), highly advanced water harvesting and management system with large cisterns/reservoirs/dams and channels (conservation of potable water).
  - Largest Harappan site in Gujarat.
- **Rakhigarhi (Haryana, India):**
  - Located in Hisar district, Haryana.
  - Excavated by Surajbhan (discoverer) and Amarendra Nath (later extensive work).
  - Features: Largest Harappan site in modern India.
  - Evidence from Early Harappan Period I: mud-brick structures, planned settlement, pottery similar to Kalibangan, uninscribed seals, terracotta wheels/carts/rattles, bull figurines, chert blades, bone tools, grinding stones, bulk animal bones (animal husbandry), stacked set of hopscotches (suggests game similar to pithu).
- **Kalibangan (Rajasthan, India):**
  - Located on the dried bank of the Ghaggar River (ancient Saraswati), North-West of Delhi.