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THE DEEP ROOTS OF TIME: A COMPREHENSIVE STUDY OF PALAEOLITHIC SITES IN TELANGANA

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Abstract
This study presents a comprehensive archaeological evaluation of the Palaeolithic horizons of Telangana, mapping the core patterns of hominin survival, lithic technology, and landscape utilization across the Deccan Plateau during the Pleistocene epoch. Geographically anchored by the dynamic Godavari and Krishna River basins, the region provided highly resilient ecological refugia characterized by rich quartzitic outcrops and stable micro-environments.

During the Lower Palaeolithic, hominins exploited tough Dharwar quartzites to manufacture heavy-duty, bifacial Acheulean tool kits, including symmetrical handaxes and cleavers found embedded within primary river gravel terraces. The subsequent transition to the Middle Palaeolithic reflects a major cognitive shift, marked by the systematic adoption of the prepared-core Levallois methodology and a technological pivot toward lighter flake-based scrapers, points, and borers. This era also initiated a deliberate shift in raw material selection toward fine-grained crypto-crystalline silicas such as chert, jasper, and chalcedony. By the Upper Palaeolithic, the arrival of modern Homo sapiens introduced highly optimized, punch-driven prismatic blade technologies and specialized burins. Ultimately, Telangana's rich Palaeolithic archive offers an essential record of evolutionary continuity, high-precision tool engineering, and hunter-gatherer adaptability in South Asian prehistory.

Keywords: Palaeolithic, Deccan Plateau, Pleistocene, handaxe, Homo sapiens, etc.

Introduction

The prehistory of Telangana offers an exceptional record of human evolution, adaptation, and technological transition in the Indian subcontinent. Far from being a marginal geographic zone, the Deccan plateau—specifically the sub-region encompassing modern-day Telangana—served as a crucial ecological refuge and a vibrant hub of hominin activity for hundreds of thousands of years. Drained by two major river systems, the Godavari and the Krishna, and punctuated by dense forest tracts, rich quartzitic outcrops, and dynamic scrub jungles, this landscape provided an ideal setting for Palaeolithic hunter-gatherers.

From the crude, heavy-duty handaxes of the Lower Palaeolithic found along the banks of the river basins to the highly sophisticated, micro-engineered microliths of the subsequent Epipalaeolithic and Mesolithic eras, Telangana's soil holds the physical archive of early human survival. This study provides an exhaustive examination of the Lower, Middle, and Upper Palaeolithic horizons of Telangana, exploring the geographic distribution of sites, technological typologies, raw material choices, and the profound environmental realities that governed life during the Pleistocene epoch.

Geographic and Environmental Framework

To understand the distribution of Palaeolithic sites in Telangana, one must look at its distinct physical geography. Telangana occupies the south-central stretch of the Indian peninsula, seated firmly upon the ancient rock formations of the Deccan Plateau.

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The River Systems: Arteries of Survival

Palaeolithic hominins were fundamentally tied to water sources. The distribution of ancient tools aligns closely with two primary river basins and their numerous perennial and ephemeral tributaries:

1. The Godavari Basin: Running through the northern and eastern districts (including Adilabad, Nirmal, Mancherial, Peddapalli, Bhupalpally, and Bhadrachadri Kothagudem), the Godavari valley features extensive alluvial deposits and gravel beds where some of the earliest stone tools in the region have been discovered.
2. The Krishna Basin: Bordering the southern margins of the state (affecting Mahabubnagar, Nagarkurnool, Wanaparthy, and Nalgonda), the Krishna River and its tributaries, such as the Tungabhadra, Dindi, and Musi, cut through rugged granite and limestone formations, creating complex micro-environments rich in rock shelters and raw lithic materials.

Lithic Resources and Raw Materials

The geological diversity of Telangana directly determined the evolution of tool-making technologies. The region is rich in:

Dharwar Quartzites:The primary material chosen by Lower Palaeolithic hominins for its durability and predictable conchoidal fracturing when making large cutting tools (LCTs).

Purana and Gondwana Formations: Providing sedimentary rocks, shales, and fine-grained silicas.
Secondary Silex Deposits: Abundant veins of chert, jasper, chalcedony, and agate found within the Deccan Traps and river gravels. These fine-grained materials became crucial during the Middle and Upper Palaeolithic periods when the demand shifted toward smaller, sharper, and more precise tool typologies.

Pleistocene Climate and Ecological Niches

During the Pleistocene epoch (roughly 2.58 million to 11,700 years ago), Telangana did not experience glacial coverage like northern Europe or the Himalayas. Instead, it underwent alternating cycles of pluvial (wet/monsoonal) and inter-pluvial (dry/arid) phases.

During hyper-arid phases, the deep, forested valleys of the Godavari and Krishna served as "ecological refugia"—safe havens where water resources, game animals, and edible wild plants persisted, allowing hominin populations to survive while surrounding regions became uninhabitable deserts.

The Lower Palaeolithic Horizon: The Acheulean Legacy

The Lower Palaeolithic period in Telangana represents the dawn of human cultural presence in the region, dominated by the Acheulean technocomplex. These tools are characterized by bifacial flaking, symmetry, and a clear cognitive blueprint existing in the mind of the toolmaker before the first strike.

Major Lower Palaeolithic Localities: Lower Palaeolithic sites are scattered widely across Telangana, found within river gravels, foothill colluvium, and surface sites:

The Mancherial and Asifabad Clusters (Godavari Valley)

In northern Telangana, the valleys of the Godavari and its tributary, the Pranhita, have yielded vast assemblages of Acheulean tools. Sites like Bhimpur, Jannaram, and Luxettipet show dense concentrations of handaxes and cleavers made from locally sourced quartzitic pebbles and cobbles. The tool configurations here point toward a "Classic Acheulean" phase, featuring thin, symmetrical ovate and lanceolate handaxes alongside cleavers with sharp, un-retouched transverse cutting edges.

The Nizamabad and Kamareddy High-Altitude Scatters
Away from the major river beds, researchers have located significant Acheulean surface sites along the slopes of granite hillocks. These open-air stations served as seasonal camp-sites or manufacturing workshops where hominins exploited veins of quartzite protruding through the weathered granitic landscape.

The Lower Krishna and Dindi Valleys
In southern Telangana, districts like Mahabubnagar and Nalgonda boast exceptional Lower Palaeolithic records. At sites situated near the confluence of the Dindi and the Krishna rivers, extensive factory sites have been discovered. The presence of large waste flakes, unworked nodules, and broken tool blanks confirms that early humans manufactured their gear directly at these raw material sources before carrying finished tools to hunting grounds.

Typological and Technological Attributes
The Acheulean culture of Telangana can be classified predominantly as Late Acheulean, though some pockets exhibit older, macro-lithic characteristics:

Handaxes: These exhibits extensive, controlled bifacial flaking, often achieved through the use of soft hammers (bone or hardwood antlers), resulting in shallow flake scars and straight, sharp lateral profiles.
Cleavers: Highly prevalent in the Godavari assemblages, these feature parallel or converging sides with a broad, flat working edge at the top, perfectly suited for heavy butchery.

Chopper-Chopping Tools: Alongside advanced Acheulean bifaces, more primitive uni-facial and bi-facial core tools survive, demonstrating that older technologies were retained when simple crushing or heavy-duty hacking tasks were required.

The Middle Palaeolithic Transition: The Shift to Flake Tool Technologies
The transition from the Lower to the Middle Palaeolithic in Telangana (roughly between 150,000 and 40,000 years ago) reflects a massive cognitive and behavioral shift. As environmental conditions fluctuated, the heavy, energy-expensive handaxes were gradually phased out. They were replaced by lighter, highly specialized flake tools.

The Levallois and Prepared-Core Methods: The hallmark of the Middle Palaeolithic in Telangana is the mastery of the Levallois and prepared-core techniques. Instead of shaping a block of stone into a single tool, the hominin carefully trimmed a stone core around its perimeter and face. This allowed them to strike off a single, pre-determined flake of predictable size, thickness, and sharpness with a single blow. This method maximized the utility of the stone and reduced waste.

Material Revolution: The Choice of Siliceous Raw Materials
During this period, hominins largely abandoned coarse quartzite. They pivoted instead to fine-grained crypto-crystalline silica stones:

Chert (ranging from creamy white to dark chocolate brown)
Jasper (deep reds and greens)
Chalcedony and Agate
These materials allowed for much finer edge retouching, resulting in tools that could be resharpened multiple times before being discarded.

Primary Middle Palaeolithic Localities in Telangana

The Godavari Valley Terraces (Cherla and Bhadrachalam)

The gravel terraces around Cherla in the Bhadrachalam region have provided classic Middle Palaeolithic assemblages. Exposed river sections show these smaller flake tools embedded within cemented gravel layers, resting directly above the older Acheulean horizons.

The Karimnagar and Peddapalli Clusters

Sites around Ramagundam and Godavarikhani contain vast quantities of Middle Palaeolithic scrapers, points, and borers. Many of these sites are open-air stations located near seasonal streams, indicating that hominins were moving deeper into interior valleys rather than clinging strictly to major river banks.

The Nalgonda and Suryapet Uplands

Here, Middle Palaeolithic tool kits are found frequently around the bases of isolated hills (guttas). The assemblages are rich in side-scrapers, end-scrapers, and tanged points, which hint at the early development of hafting technology—attaching stone tips to wooden shafts to create spears.

Tool Kit Diversity and Function

The Middle Palaeolithic tool kit in Telangana shows a high degree of specialization:

Scrapers (Side, End, and Concave): Designed for scraping meat off hides, processing wild tubers, and shaping wooden shafts.

Borers (Awls): Flakes featuring a sharp, distinct projection used to punch holes in leather, bark, or animal skins.

Points: Triangular flakes reworked along the edges to serve as projectile points or cutting tips for hunting spears.

The Upper Palaeolithic Period: Blade Technologies and Symbolic Horizons

Spanning the late Pleistocene (around 40,000 to 10,000 years ago), the Upper Palaeolithic period in Telangana aligns with the global expansion of anatomically modern humans (Homo sapiens). This era introduced a sophisticated stone working method: blade technology, alongside the earliest definitive clues of regional rock art and symbolic behavior.

Technological Advancement: The Cylindrical Core

The defining feature of the Upper Palaeolithic is the production of true blades. By preparing a cylindrical or prismatic stone core, the toolmaker used a punch-driven indirect percussion technique to peel off long, thin, parallel-sided strips of stone. The length of these blades was always at least twice their width, providing an unprecedented amount of sharp cutting edge per pound of raw material.

Component Typologies of the Upper Palaeolithic Kit

Backed Blades: Blades whose back edges were intentionally dulled (blunted) through steep retouching, allowing the user to press down hard with a thumb without getting cut.

Burins: Specialized, chisel-ended tools used to engrave bone, antler, wood, or rock surfaces.

Borers and Leaf-Shaped Points: Highly aerodynamic stone tips showing delicate, pressure-flaked retouches.

Notable Upper Palaeolithic Sites in Telangana

The Asifabad and Komaram Bheem Districts: The rugged, forested terrain of northern Telangana holds several critical Upper Palaeolithic workshop sites. Deep inside limestone and sandstone valleys,

researchers have recovered hundreds of pristine prismatic cores, debitage flakes, and finished backed blades made from fine-banded chert.

The Pandavula Gutta and Bhupalpally Complex

Pandavula Gutta is one of Telangana's most famous prehistoric landmarks. While celebrated for its rich historic and Mesolithic rock art, its lower geological strata and surrounding scree slopes have yielded significant Upper Palaeolithic tool configurations.

The Amarabad Plateau and Nallamala Fringe (Nagarkurnool)

The high-altitude limestone plateaus and deep gorges of the Nallamala hills provided an excellent landscape for Upper Palaeolithic hunters. The numerous natural caves and limestone shelters overlooking perennial springs served as long-term seasonal base camps. Excavations here reveal an economy based on hunting large and medium plains game, alongside organized foraging across the variable plateau elevations.

The Northern Corridor (Adilabad, Mancherial, Nirmal, Asifabad)

This zone acts as a natural bridge between Central India and the Deccan Plateau.

Bhimpur & Jannaram: Famous for stratified Lower Palaeolithic deposits embedded in ancient cemented gravels.

Babapur: An open-air factory site showing clear evidence of Lower-to-Middle Palaeolithic cultural transitions.

Wankdi: A rich Upper Palaeolithic site that has yielded exceptional micro-blades and evidence of specialized chert processing.

The Central and Eastern Basin (Peddapalli, Karimnagar, Warangal, Bhupalpally, Khammam)

Characterized by a mix of granitic hill clusters and wide river valleys.

Ramagundam & Godavarikhani: One of the most intensively surveyed Middle Palaeolithic complexes in South India. It features extensive assemblages of Levallois flakes and scrapers.

Pandavula Gutta (Regonda): A critical sandstone hill complex with occupation layers stretching from the Upper Palaeolithic through the Mesolithic period.

Cherla (Godavari Bank): Known for its exposed, multi-tiered river sections that showcase distinct, sequential tool layers across different eras.

The Southern Uplands (Mahabubnagar, Nagarkurnool, Nalgonda, Wanaparthy)

A semi-arid zone broken up by limestone valleys and the deep gorges of the Krishna River.

Amarabad Plateau: Natural cave sites and rock shelters containing thick Upper Palaeolithic habitational deposits.

Yelishwaram: Located near the Krishna River, this site revealed deep prehistoric sequences before the construction of the Nagarjuna Sagar Dam.

Dindi Valley Assemblages: A dense network of Middle Palaeolithic surface scatters and open-air workshops rich in red and green jasper tools.

Chronology, Site Preservation, and Future Research Directions

The Chronological Framework: Dating the Palaeolithic sites of Telangana has historically relied on relative dating methods—analyzing the geological layers (stratigraphy) of river terraces and comparing tool styles with dated sites elsewhere in India. However, recent advancements in absolute dating are shedding new light on the timeline:

Thermoluminescence (TL) and Optically Stimulated Luminescence (OSL): These methods date the last time the sand grains around a tool were exposed to sunlight. They have helped anchor the Middle and Upper Palaeolithic sites of the Godavari valley within a firm timeline spanning from roughly 120,000 to 15,000 years ago.

Cosmogenic Nuclide Burial Dating: This cutting-edge method measures the radioactive decay of beryllium and aluminum isotopes in quartz grains. Applied to similar Acheulean sites across India (like Attirampakkam in Tamil Nadu and Isampur in Karnataka), it suggests that the oldest Lower Palaeolithic tools in the Deccan Plateau may be over 1 million to 1.5 million years old. This framework places Telangana's early hominin sites within a deep global timeline of human evolution.

Challenges to Prehistoric Heritage

The Palaeolithic archives of Telangana face significant preservation challenges:

Industrialization and Mining: Quartzite and granite quarrying in districts like Karimnagar, Mahabubnagar, and Nalgonda routinely destroys priceless open-air factory sites and surface scatters before they can be documented.

Agricultural Expansion: Deep-ploughing practices and land leveling erase prehistoric campsites located along the banks of minor agricultural streams.

River Basin Development: Large-scale irrigation projects and dam construction submerge ancient river terraces, permanently cutting off access to deep, stratified tool layers.

Horizons for Future Research

To unlock the full potential of Telangana’s prehistoric record, future archaeological research should prioritize three key areas:

Systematic Cave Excavations: Exploring undisturbed cave systems within the limestone zones of the Amarabad Plateau and Adilabad to recover fossilized bones, pollen grains, and ancient environmental data.

Micro-Wear and Residue Analysis: Examining the edges of fine chert and jasper tools under high-powered microscopes to find microscopic traces of meat, plant tissue, or wood adhesive. This will help confirm exactly how these tools were used.

Interdisciplinary Geoarchaeology: Collaborating with geologists and climate scientists to build high-resolution models of the prehistoric climate. Understanding these ancient changes will reveal how early humans adapted to shifts in rainfall and vegetation across the Deccan landscape.

Conclusion

The Palaeolithic sites of Telangana are far more than scattered piles of broken stone. They represent the durable, brilliant footprint of early human adaptation across hundreds of thousands of years. Through periods of severe drought and abundant monsoon rains, early hominins successfully navigated this landscape—learning the traits of its rocks, tracking its wildlife, and refining their tools from large, heavy handaxes into delicate, high-precision blades.

From the gravel beds of the Godavari to the high cave shelters of the Nallamala hills, Telangana stands as a vital region for understanding human prehistory. Preserving, studying, and valuing these ancient landscapes is essential to unlocking the deep story of human resilience, intelligence, and survival on the Indian subcontinent.

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