



ANCIENT ASIA

Vol. 17, 2026, pp. 133-162
© ARF India

URL: <https://ancient-asia-journal.com>
<https://doi.org/10.47509/AA.2026.v17i.09>

<https://creativecommons.org/licenses/by/3.0/>

Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under a Creative Commons Attribution License

Geoglyphs in India: Landscape, Practice, and Perception (A Comparative Analysis of Konkan and Jaisalmer)

Tanya Tibrewal¹, Vasant Shinde² and Sachin Kr. Tiwary³

¹IKS-Intern, Department of AIHC and Archaeology, Banaras Hindu University, Varanasi, India. E-mail: tanyatibrewal97@gmail.com

²CSIR Bhatnagar Fellow, CCMB, Hyderabad, India. E-mail: vshinde.dc@gmail.com

³Assistant Professor, Department of AIHC and Archaeology, Banaras Hindu University, Varanasi, India. E-mail: sachintiwary@bhu.ac.in
<https://orcid.org/0000-0003-3838-9659>

*Corresponding Author: sachintiwary@bhu.ac.in

Abstract: Geoglyphs constitute a distinctive form of large-scale landscape modification, reflecting complex interactions between human societies and their environments. While extensively studied in regions such as South America, geoglyph traditions in India remain comparatively underexplored. This paper examines geoglyphs from the Konkan and Jaisalmer regions using an integrated approach that combines morphological analysis, spatial context, and theoretical interpretation. Drawing upon phenomenology and the concept of taskscape, the study interprets geoglyphs not merely as visual representations but as embodied practices embedded within lived landscapes. The analysis reveals significant regional variation. Konkan geoglyphs, characterized by figurative motifs and reductive engraving techniques, suggest localized, ritualized engagements with laterite plateaus, potentially dating to the Mesolithic period. In contrast, the large-scale geometric formations of Jaisalmer, likely of more recent origin, indicate movement-oriented spatial practices associated with routes, memorial landscapes, and desert navigation. This contrast challenges the notion of a unified geoglyph tradition in India and instead points to episodic and context-specific developments shaped by environmental and cultural factors.

By situating Indian geoglyphs within broader theoretical and comparative frameworks, the study contributes to global discussions on landscape archaeology, emphasizing the experiential, performative, and processual dimensions of large-scale earthworks.

Keywords: Geoglyphs, Intaglios, Petroglyphs, Jaisalmer, Konkan, Rock art.

Received: 11 October 2024

Revised: 12 December 2025

Accepted: 19 June 2026

Published: 5 September 2026

TO CITE THIS ARTICLE:

Tanya Tibrewal, Vasant Shinde, & Sachin Kr. Tiwary (2026). Geoglyphs in India: Landscape, Practice, and Perception (A Comparative Analysis of Konkan and Jaisalmer). *Ancient Asia*, 17: 1, pp. 133-162. <https://doi.org/10.47509/AA.2026.v17i01.09>

Introduction

India has a rich rock art tradition, yet geoglyphs, large anthropogenic ground designs, are still poorly understood. Unlike in Peru, Chile, Australia, and the Arabian Peninsula, Indian geoglyphs have only recently gained archaeological attention. Discoveries in the Konkan region and Thar Desert reveal their importance, but key questions remain. Indian geoglyphs vary widely in form, technique, setting, and age. It's unclear whether these differences stem from a single evolving tradition or separate developments adapted to different environments. Most studies focus on individual sites without broad comparisons. This research compares geoglyphs from Konkan and Jaisalmer, analyzing their forms, techniques, locations, archaeology, and environments to identify similarities and differences. It explores whether these reflect distinct cultural landscapes or a shared tradition. Using field data, satellite imagery, and archaeological evidence, it offers the first systematic comparison of India's two main geoglyph traditions, discussing their significance through landscape archaeology, phenomenology, and taskscape, while noting the limits of current evidence.

Research Questions and Objectives

Research Questions

The present study is guided by the following research questions:

1. What morphological and technological characteristics distinguish the geoglyphs of the Konkan and Jaisalmer regions?
2. How do the two geoglyph traditions differ in landscape setting, spatial organization, and archaeological context?
3. To what extent can these similarities and differences be interpreted as evidence for distinct cultural practices rather than a continuous geoglyph tradition in India?
4. What methodological limitations constrain current interpretations of the chronology and function of Indian geoglyphs? ?

Objectives

The objectives of this study are:

- to document the principal morphological characteristics of geoglyphs from the Konkan and Jaisalmer regions;
- to compare their construction techniques, landscape contexts, and associated archaeological evidence;
- to evaluate similarities and differences using a comparative archaeological approach; and
- to discuss possible interpretations within the broader framework of landscape archaeology while clearly distinguishing empirical observations from interpretive inferences..

Materials and Methods

Research Design

This study adopts a comparative archaeological approach to examine the two principal geoglyph traditions currently known in India: the engraved laterite geoglyphs of the Konkan region (Maharashtra) and the large ground-marking geoglyphs of the Jaisalmer region (Rajasthan). Rather than assuming cultural continuity between these geographically and chronologically distinct traditions, the research

systematically compares their morphology, production techniques, landscape settings, associated archaeological remains, and spatial organization to identify similarities and differences. The study combines primary field observations with published archaeological documentation and geospatial analysis. Empirical observations form the principal analytical foundation, while theoretical concepts from landscape archaeology, phenomenology, and Tim Ingold's concept of taskscape are used only in the interpretative discussion.

Study Areas

The study focuses on two geographically distinct regions that represent contrasting traditions of geoglyph production in India. The first comprises the lateritic plateaus of the Konkan coast in Maharashtra, where hundreds of engraved petroglyphs have been documented over the past decade. These are predominantly figurative engravings depicting animals, anthropomorphic figures, and geometric motifs, executed by pecking into exposed laterite bedrock. The second comprises the Thar Desert around Boha and neighboring localities in Jaisalmer District, Rajasthan, where extensive linear and spiral ground formations extend for several kilometers across desert surfaces. These differ fundamentally from the Konkan examples in scale, morphology, landscape setting, and probable chronology. These two regions were selected because they currently represent the best-documented geoglyph traditions in India and provide an opportunity to examine whether similar landscape modifications emerged under contrasting ecological, technological, and cultural conditions.

Sources of Archaeological Data

This study combines various archaeological evidence types. The authors collected primary data through fieldwork in the Konkan and Jaisalmer regions, examining geoglyphs and related remains on-site. They recorded measurements, morphology, production methods, preservation states, geological contexts, and archaeological links using notes, photos, GPS when available, and direct visual captures. These primary findings were enhanced by reviewing published reports, excavation data, satellite images, and previous geoglyph studies by other researchers. Such sources helped verify observations, establish chronological timelines, and contextualize sites within broader archaeological frameworks. Only data backed by published records or direct observations were included in the analysis.

Recording Protocol

For each geoglyph locality, observations were organized using a standardized set of analytical variables to facilitate comparison between the two regional traditions.

The following attributes were recorded wherever possible:

- geographical setting;
- dimensions and overall morphology;
- production technique (engraving, pecking, surface clearance, or stone arrangement);
- motif category (anthropomorphic, zoomorphic, geometric, or linear);
- geological substrate;
- orientation and visibility;
- associated archaeological remains, including ceramics, cairns, memorial stones, cupules, burials, and architectural features;
- state of preservation;
- previously proposed chronological assessment.

Standardizing these variables enabled direct comparison of the Konkan and Jaisalmer datasets despite differences in chronology, environment, and construction techniques.

Comparative Analytical Framework

Comparative analysis was undertaken using five principal analytical dimensions:

1. morphology and iconography;
2. production technology;
3. landscape context;
4. archaeological associations;
5. chronological evidence.

Each analytical category was first described independently for both regions using observable archaeological evidence before broader comparisons were undertaken.

Interpretative discussion was deliberately separated from empirical description in order to distinguish archaeological observations from theoretical inference.

Analytical Procedure

The analysis was conducted in three sequential stages. First, each regional geoglyph tradition was documented independently through descriptive archaeological analysis of morphology, technique, landscape setting, and associated material remains. Second, similarities and differences between the Konkan and Jaisalmer datasets were evaluated using comparative archaeological criteria without assuming cultural continuity. Finally, broader interpretations of landscape engagement, movement, and social practice were explored through phenomenology and the concept of taskscape. These interpretations are presented as explanatory models rather than empirically verified conclusions and are intended to generate hypotheses for future archaeological investigation.

Empirical Results

Konkan Geoglyph Tradition

Geographic and Environmental Setting

The Konkan geoglyphs are found on the lateritic plateaus along the Konkan coast in western Maharashtra, mainly in Ratnagiri and Sindhudurg districts. These plateaus are part of the Deccan Traps and feature exposed ferricrete (laterite) surfaces shaped by long-term tropical weathering. The terrain includes elevated tablelands divided by deeply eroded river valleys and narrow coastal plains. The region has a humid tropical monsoon climate, with over 3,000 mm of annual rainfall, leading to seasonal streams and numerous temporary water bodies. Most geoglyphs are located on gently sloping or nearly flat laterite surfaces that become visible after seasonal vegetation dies back. Their distribution shows a preference for stable bedrock over loose sediments, indicating that geological factors influenced their placement. Most sites are near seasonal water sources such as ponds, streams, or natural depressions retaining rainwater during the monsoon, suggesting these surfaces were part of landscapes frequently visited or inhabited by prehistoric communities.

Archaeological Context

The Konkan geoglyphs are not isolated occurrences but are part of a broader archaeological landscape that contains evidence of prehistoric occupation. Several engraved plateaus have yielded lithic assemblages,

particularly microlithic artifacts, indicating repeated human activity during the prehistoric period. Published investigations at sites such as Kasheli, Rundhetai, and Chave have reported microlithic material associated with the engraved surfaces, which provide the principal archaeological evidence currently available for assessing their chronology. Unlike the Jaisalmer examples, no substantial architectural remains, cairns, memorial stones, or funerary monuments have been documented in direct association with the Konkan geoglyphs. Instead, the archaeological evidence consists primarily of lithic artifacts and the engraved laterite surfaces themselves. The absence of extensive structural remains suggests that the archaeological significance of these sites resides principally in the engraved landscape rather than in built features.

Morphological Characteristics

The Konkan assemblage mainly features engraved figurative motifs carved directly onto exposed laterite bedrock. It comprises depictions of animals, human-like figures, geometric patterns, footprints, and abstract symbols. The largest group consists of zoomorphic figures, including animals such as deer, bovids, fish, turtles, and birds, appearing frequently. Human-like figures range from simple stick figures to more complex designs with stylized body parts. Geometric motifs include concentric circles, linear arrangements, cupules, and other abstract shapes.

Most engravings are standalone images occupying specific bedrock areas, not part of continuous linear scenes. Their sizes vary widely, from small motifs to human-like figures over two meters tall. These engravings typically have clear outlines created by repeated pecking into the laterite, with grooves about 2–4 cm wide and around 5 cm deep. The geoglyphs are usually visible from ground level and are best appreciated up close. Unlike Jaisalmer's large desert formations, these do not require aerial views for recognition.

Production Technique

Macroscopic analysis shows that the Konkan geoglyphs were created through reductive engraving using repeated percussion with stone hammers. The engravers removed weathered laterite by successive pecking, forming shallow yet distinct grooves. Variations in groove width and surface finish indicate impacts from repeated strikes rather than continuous cuts. The exposed ferricrete bedrock provided a stable, durable surface that has preserved the motifs despite long-term weathering. While tools are not directly recovered from every site, the groove morphology aligns with percussion methods documented in other prehistoric rock art. No signs of additive construction, stone alignments, or earth-moving activities have been found at the Konkan locations.

Preservation

The condition of the Konkan geoglyphs varies greatly across different sites. Many engravings are obscured by natural processes such as weathering, biological growth, seasonal vegetation, soil buildup, and lateritic erosion. Human activities have also increasingly impacted these sites, especially through laterite quarrying, agricultural changes, road development, and unregulated tourism. At some locations, modern graffiti and accidental trampling have further damaged the visibility of the motifs. On the other hand, a few sites benefit from protective measures such as boundary walls and viewing platforms, indicating growing local recognition of their archaeological value. However, preservation remains inconsistent, highlighting the importance of thorough documentation and long-term conservation efforts.

Chronological Assessment

Establishing the chronology of the Konkan geoglyphs remains one of the principal challenges in their archaeological interpretation. Direct dating of the engravings has not yet been achieved. Current chronological assessments therefore rely on indirect archaeological evidence, including associated lithic artefacts, faunal representations, weathering characteristics, and comparisons with regional prehistoric assemblages.

Published studies have suggested a broad prehistoric age, with several investigators proposing a provisional Mesolithic attribution based primarily on the occurrence of microlithic assemblages and the apparent absence of domesticated animals, metal implements, or agricultural imagery. The depiction of fauna thought to have become locally extinct before the historic period has also been considered consistent with a prehistoric date. However, these chronological assessments remain provisional and require confirmation through future excavation, geoarchaeological investigation, and absolute dating techniques. Accordingly, the Konkan geoglyphs should presently be regarded as tentatively prehistoric, while recognizing that their precise chronological placement remains an open question.

Terminology of Geoglyphs

The monumental scale of geoglyphs suggests a collective cultural agency rather than individual artistic expression. Geoglyphs come from the Greek word *gê*, ‘earth’, and *graphein*, ‘engraving’. Geoglyphs are large-scale designs, motifs, or patterns created on the earth's surface, intended to be seen from an aerial perspective (Lopez & Tiwary, 2025: 3-17). They are often created by engraving or altering natural materials such as rocks, soils, or stones (Oetheimer and Oetheimer 2021:01). The first person to discover this cultural material was Prof. Toribio Mejía Xesspe in Nazca, Peru, South America, in 1926 CE. Prof. Mejía calls these traces ‘ceremonial paths.’ The term ‘Geoglyphs’ was proposed in 1966 and is now also known as ‘Geoquilcas’, which means graphic expression on earth. Geoglyphs are purposefully created human representations of abstract or unknown formations or naturalistic features. They usually feature large-scale designs, either enormous artworks or compositions of smaller pieces that cover a significant area. Geoglyphs might be lines, abstract symbols, geometric patterns, or depictions of people or animals. They are frequently formed in desert or arid settings, ranging from a few meters to many kilometers. They can serve as witnesses or as evidence for a long time. The study of Geoglyphs advances our knowledge of historical cultures and civilizations by revealing important details about their everyday lives, religious expressions, cultural practices, creative abilities, and cultural symbols. They may be used as teaching tools to provide knowledge about past societies' history, customs, and artistic creations (Valenzuela and Clarkson 2014). They explain how people interacted with their surroundings across many eras. While we can recognize its form, its functions cannot be understood without more details.

Typology of Geoglyphs

Typologically, geoglyphs are grouped into several categories based on their method of creation. Reductive geoglyphs involve removing or reducing soil to create patterns. Extractive geoglyphs, categorized as negative geoglyphs, are formed by removing the top layer of soil over solid bedrock. Examples include sites in India's Konkan region and the Uffington White Horse in England (Hirst 2018). In contrast, additive geoglyphs are positive forms created by gathering materials, such as rocks, on the ground to form figures, like Australia's Gummingurru arrangement (Hirst 2018). Pressure geoglyphs are created by compressing the ground to form designs, though none have been reported in India. Mixed-technique geoglyphs combine these methods, most commonly integrating reductive, extractive, and additive processes.

The selection of technique was sometimes determined by the relationship between visibility and the suitability of the Earth's surface. Gravity, winds, and rain can cause erosion that might damage the geoglyphs, especially those created on slopes. The visibility of both additive and subtractive geoglyphs improves under raking light on both horizontal and sloped surfaces. This is important because differences in color and texture could diminish over time (Valenzuela and Clarkson 2014). The enormous size of such geoglyphs indicates that they are the work of many artists rather than one individual's work. Such cooperation among several artists may have fostered social unity in the process.

Tables 1 and 2 collectively present a structured classification of rock art, situating geoglyphs within the broader category while also detailing their internal typology. Rock art offers insights into our ancestors' cultural and symbolic worlds, spanning more than 40,000 years at sites around the world. It includes figurative and abstract symbols carved or painted on rocks, revealing daily life, rituals (Bednarik 2001), and beliefs, and connecting us to human history through motifs such as hunting and shamanism. Types include petroglyphs (carved), pictographs (painted), combined petroglyphs-pictographs (Tiway & Krishnamurthy 2011-12), and geoglyphs (large ground designs), which are especially prominent in India (Figure 1). This art forms a window into prehistoric minds and societies. Within this framework, geoglyphs emerge as a distinct landscape-based expression, characterized by their large scale and integration with the terrain rather than by their isolation on isolated rock surfaces. Their typology is further refined into reductive (removal-based), additive (construction-based), pressure, and mixed techniques, as well as morphological distinctions such as linear/geometric and figurative forms. Together, the tables highlight that while geoglyphs share a conceptual link with other rock art traditions, they differ significantly in their spatial logic, visibility, and methods of creation, reinforcing their status as a unique category of cultural expression within archaeological studies.

A comparative perspective reveals two broad categories of geoglyphs distinguished by form, technique, scale, and interpretive significance. Linear or geometric geoglyphs comprise lines, spirals, boustrophedon patterns, and other structured layouts, typically created through additive or reductive methods. These are generally executed on a very large scale, often best appreciated from an aerial vantage, as exemplified by the Boha spirals and serpentine lines of Jaisalmer. Their emphasis lies in directing movement across space and organizing the landscape into patterned, possibly processional or cosmological pathways. In contrast, figurative geoglyphs consist of representational forms depicting animals, human figures, or composite symbolic motifs, most commonly produced through reductive

Table 1: Types of Rock Art

<i>Type / Sub-type</i>	<i>Definition</i>	<i>Technique / Method</i>	<i>Scale & Visibility</i>	<i>Examples / Context</i>	<i>Remarks</i>
Petroglyphs (Extractive Art)	Designs carved or engraved directly onto rock surfaces	Pecking, chiseling, engraving, abrading, hammering, etc.	Small to medium scale; visible at ground level	Himalayan, Vinndhyan, Deccan, Konkan regions, engravings on regional rocks; global rock art traditions	Often confused with geoglyphs in the Indian context, primarily surface-based
Pictographs (Pigment Art)	Painted images on rock surfaces using natural pigments	Brushing, finger painting, stenciling, spraying	Small scale; visible at close range	Central India, Kaimur Range, Deccan: global cave art	More fragile; subject to weathering
Composite Forms (Petroglyphs-cum-Pictographs)	A combination of engraving and painting on the same surface	Sequential application of carving and pigment	Small to medium scale	Chhotanagpur region examples	Indicates multi-phase artistic activity
Geoglyphs (Landscape-Based Rock Art)	Large-scale designs created on the ground surface by modifying natural materials	Removal, arrangement, or compression of soil/rocks	Large to monumental scale; often not fully visible from the ground	Konkan (engraved plateaus), Jaisalmer (linear desert formations)	Distinct due to landscape integration rather than the rock surface alone

engraving techniques. These are usually medium to large in scale and are intended for local visibility, as seen in the Konkan examples of elephants, anthropomorphic figures, and hybrid motifs. Unlike the abstract spatial logic of geometric geoglyphs, figurative forms are more directly associated with symbolic, ritualistic, or narrative interpretations, suggesting a closer engagement with cultural meanings and belief systems.

Table 2: Typology of Geoglyphs (Sub-category of Rock Art based on Lopez & Tiwary, 2025: 3-17)

Type / Sub-type	Definition	Technique / Method	Scale & Visibility	Examples / Context	Remarks
Reductive Geoglyphs	Designs created by removing surface material to expose a contrasting substrate	Scraping, clearing, pecking, and excavation	Medium to large scale; visible under raking light or elevation	Konkan plateau engravings	Closest to petroglyphs, but operate at a larger spatial scale
Extractive (Negative) Geoglyphs	Sub-type of reductive forms where the upper layer is removed to reveal the underlying surface	Surface stripping or incision	Large scale; contrast-based visibility	Nazca lines (global comparison); some Indian parallels	Often used interchangeably with reductive
Additive (Positive) Geoglyphs	Designs formed by arranging stones (Werlhof, 1995:73-81), soil, sand or other materials on the ground	Placement and alignment of materials	Large scale; visible from a distance	Desert formations in Jaisalmer; cairn-associated lines	Common in sandy or alluvial environments
Pressure Geoglyphs	Created by compressing the ground surface without removing or adding material	Trampling, stamping, Pressure, based formation	Variable scale; low relief	Not clearly reported in the Indian context	Rare and difficult to identify archaeologically
Mixed-Technique Geoglyphs	A combination of reductive and additive methods	Hybrid techniques depending on terrain	Large scale	Possible in complex sites like Jaisalmer	Reflect adaptive strategies

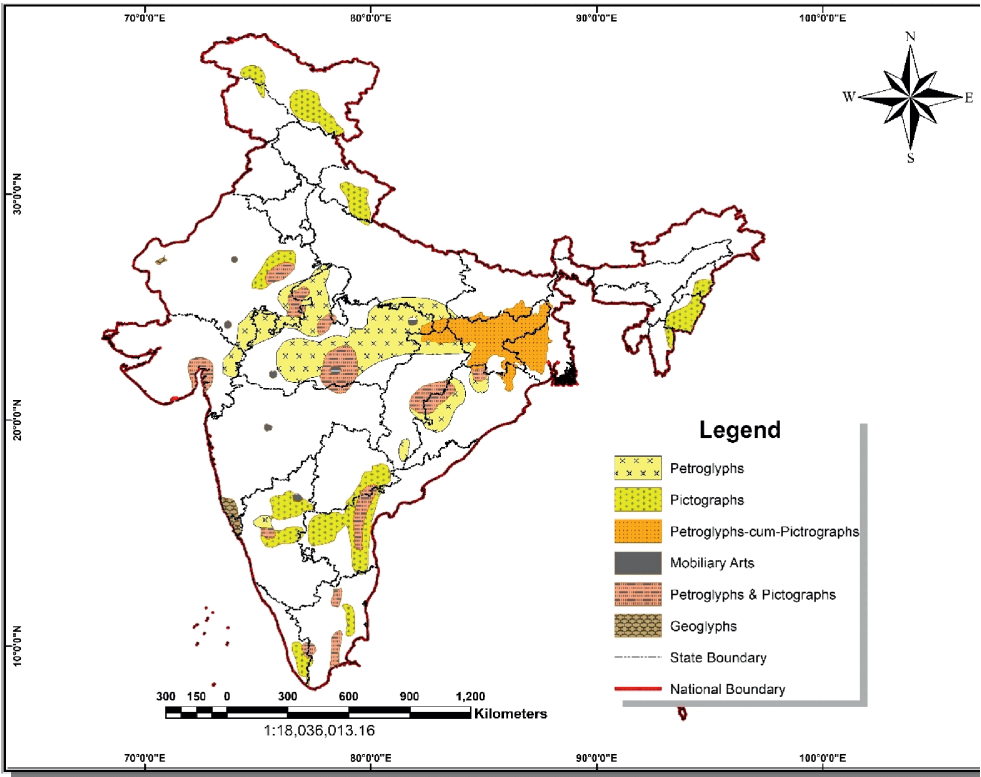


Figure 1: Distribution of Rock Art sites in India

Tentative Purposes of Geoglyphs

In the absence of clear utilitarian functions, geoglyphs are generally interpreted as elements of material culture associated with religious, ritual, or ceremonial activities (Clarkson 1998). However, their precise purpose remains uncertain, and their diversity in form, scale, and location suggests multiple overlapping functions. Geoglyphs could have served as territorial markers (Bikoulis, et.al 2018:1377–1391) and navigational landmarks for trade (De Souza, 2024:44-53). They could also have been seen as resource indicators that identify water or minerals, while also serving as ceremonial spaces for worship (Lambers, 2020:89-105). They could have functioned in ancestor worship, water and fertility rituals, and as hunting structures (Riemer, 2007:175-188) or cemeterial markers. Lastly, there is the theory of astronomical alignments (Richter, et.al. 2021: 1637). Altogether, these manifestations represent deliberate efforts to organize landscapes through ritual artifacts and collective actions.

Geoglyphs are multifaceted cultural features, possessing symbolic, ritual, and practical qualities. Several large figures were constructed for viewing from an elevated point, symbolizing a connection between the figure and supernatural entities, gods, or trance states (Valenzuela and Clarkson 2014). According to Ruggles, some geoglyphs were used for pilgrimages and meditations (Ruggles and Saunders 2012). Geoglyphs mark locations formed through rituals related to origin myths, medical cures, harvest celebrations, and initiation rites. It is possible that geoglyphs served multiple purposes, as the construction of new lines erased traces of the older ones. Although geoglyphs across regions may share similarities, they have distinct origins and developed separately (Valenzuela and Clarkson 2014).

Geoglyphs around the World

Geoglyphs are mysterious reminders of the imagination and resourcefulness of past societies. These colossal works of art span vast plains, plateaus, and deserts, notably in South America's arid regions, such as the Nazca and Atacama Deserts. Significant findings also occur in the forest ecosystems of Bolivia and Brazil. While some, such as Australia's Marree Man, are contemporary, others date to the Late Upper Paleolithic (Mailland 2012). By analyzing diverse geographical and cultural contexts, this study sheds light on the variety of human creativity and the enduring appeal of these enormous mysteries across different eras.

Earthen mounds in the Mississippi and Ohio River basins and the Great Lakes region are among the oldest North American geoglyphs. Effigy mounds depict wildlife and geometric designs visible from above, reflecting various cultures and periods, including cosmic 'medication wheels' in the Northern Plains. Geoglyphs in Western South America, especially in Peru's Nazca region, are made by extraction. In northern Chile, the 'Atacama Giants' marked astrological events, and Bolivia's Sajama Lines linked settlements and mountains (Valenzuela and Clarkson 2014). Australia's geoglyphs, mainly stone arrangements, are found in arid central, western, and northern regions, including the Marree Man, a massive Aboriginal figure 4,200 meters long whose purpose remains unknown (David et al., 2004). The Uffington White Horse in Oxfordshire is a validated geoglyph, created 3,000 years ago by excavating a trench and filling it with chalk. Geometric shapes, such as lines of removed pebbles and dirt (Valenzuela and Clarkson 2014), are found in Algeria, Libya, Egypt, Israel, and Arabia, where many are ancient (up to 9,000 years old) and used for functions such as hunting, burial, and ceremonies.

Geoglyphs in India

India is home to a diverse range of geoglyphs, which are large-scale patterns carved into the earth's surface. Many geoglyphs are found across the two regions of India. Western India and the Konkan

Coastal Region depict animals and human figures in Konkan, geometric patterns and faunal complex themes in the Thar Desert, and other regions. The geoglyphs serve varied purposes, including astronomical, ceremonial, territorial, and cultural. The current study aims to analyze the geoglyphs found in India, their locations, cultures, and historical backgrounds. It seeks to solve the mystery of the geoglyphs by examining major sites and adopting methods such as historical research, cultural analysis, satellite imagery, and field investigations. Geoglyphs have presented a novel dimension of prehistoric art in India. The discovery of the geoglyphs, therefore, provides a new avenue for researching and understanding both geoglyphs and Indian rock art.

Konkan Region

Geographical location: Konkan, formerly known as Aparanta, has been an active region since ancient times. The 720 km stretch along India's west coast includes Maharashtra, Goa, and Karnataka. In Maharashtra, it spans districts such as Thane, Greater Mumbai, Raigarh, and Ratnagiri (as shown in Figure 1) and is bounded by the Arabian Sea and the Western Ghats. Seasonal rivers drain monsoon rains from the Sahyadri Hills, shaping the area's landscape with low lateritic plateaus and an uneven coastline of bays and headlands. The region hosts port cities involved in international trade, rock-cut caverns, forts, and foreign colonies, reflecting its rich archaeological history. Although prehistoric evidence is sparse, historical, medieval, and modern records confirm human presence (Garge et al., 2018:39).

Previous works: Numerous academics, including Todd (1932, 1939), Joshi and Bopardikar (1972), Guzder (1980), and others, researched the Konkan. In 2001, Marathe found Acheulian tools and animal remains at Susroni, Palshet, and Hedvi, indicating Late Pleistocene coastal cave habitation. While these findings shed light on early human history and environment, evidence for a proto-historic population transitioning to the early Historic era is limited (Garge et al., 2018:40). Konkan geoglyphs, or petroglyphs, are carved using reductive techniques (Garge et al., 2018:40). Dalvi (1990:34-43) highlighted their significance at sites like Nivli Phata, Barsu, and Devihadol, classifying them as Neolithic, while Ghanekar (1995:156-176) called them “Katalshilpa”. Gogate, Pradhan, and Shirvalkar (2008:115-123) identified large-scale carvings at Pomendi, Gawadewadi, and Bhu on laterite plateaus, though dating is uncertain. Lalit (2013:69-72) found geoglyphs at Kudopi and Hiwale depicting humans, fish, and female deities, possibly related to Neolithic shamanic rites. Rane-Kothare (2013:156-163) also found geoglyphs in Kapadgaon and Umre, suggesting early pastoral culture. Lad (2018) linked relief carvings at Barsu and Nivli Phata to the Harappan script. These scholars' work is vital for understanding Konkan's historical and cultural context, forming a foundation for future research. Additionally, Risbud, Thakur Desai, and Marathe discovered many new geoglyph sites. Their investigations, including revisiting known sites and speaking with locals, led to the discovery of additional locations near Barsu and six new sites in Rajapur tehsil. Some sites were known through local myths. The team focused on the ‘Sadas’ plateaus and shared findings in a Marathi newspaper (Garge et al., 2018:41).

Visited sites: Over 2,000 geoglyphs are found across more than 180 settlements, with new sites added daily. In 2022, nine sites were proposed for UNESCO's tentative list. During two days of fieldwork in the Konkan region by the first author and several visits by the second author, they observed several geoglyph locations. Nivali has two distinct sites; engravings along the roadside likely continue beneath the road (Figure 2). These carvings, found during road construction near Ratnagiri in the 1980s, are the earliest in the Konkan. While only half are visible today, they feature a center cross, motifs in adjacent quadrants, and an S-shaped enclosure. Despite intricate, small designs and a lack of symmetry, they seem a single, minimally altered unit. The site faces threats from nearby mining, with evidence of ongoing activity, and part of it is lost to the road. A laterite-brick border

suggests efforts to protect it. Awareness exists, and protection is possible. The second site at Nivali, near Site 1, was also at risk but protected from deep mining. Its main panel resembles Site 1's but is more degraded, enclosed in a square or rectangular frame with an S-shaped border, a central cross, and detailed patterns. A laterite perimeter wall safeguards it, with additional carved legs nearby, similar to Rundhe Tali but more decorated.



Figure 2: Geoglyphs at the roadside of Nivali (Source: Authors)



Figure 3: (a) Pair of carved legs at Nivali (b) Pair of carved legs at Rundhe Tali (Source: Authors)



Figure 4: Abstract Sea Turtle (Source: Authors)

Unidentifiable as a sea cucumber, this artifact is placed outside the main panel but positioned much closer to it. Similar jellyfish carvings, also found at Rundhe Tali, resemble this Geoglyph. It has been described as an abstract sea turtle (Figure 4). Site two features solitary Geoglyphs on the opposite side of the road in a secluded area. Their exact representation is unclear, possibly a sea cucumber, snake, or phallus, due to weathering effects. This carving demonstrates how human erosion damages ancient Geoglyphs, emphasizing the importance of protection. Time and foot traffic have worn down this Geoglyph near a trail crossing the laterite plateau to a farmhouse. Softer laterite here erodes more quickly once the blacktop layer is removed (Standage 2019). Figure 5 depicts two sites worth exploring, both discovered in 2016. A variety of mostly abstract Geoglyphs are scattered along a road across the laterite plateau at Ukshi. The images appear to have been created over a long period by different individuals. At Ukshi, the largest carvings remain the most enigmatic. The top part of what seems to be a head has two large eyes and an abstract pattern forming eyebrows and a nose bridge (Figure 5) (Standage 2019).



Figure 5: Head? (Source: Authors)



Figure 6: (a) Comb (b) The form of two Heads and Soulders (c) A Hummingbird (d) Shopping Bag (Source: Authors)

Regarding the other barely distinguishable pictures, may they be a comb, the form of two heads and shoulders arranged in reverse symmetry, a hummingbird, or a shopping bag? (Figure 6 a,b,c &d). The massive life-size carvings of a male Indian elephant at the second site of Ukshi are the only animal representations. Even though only one front and one back limb have been carved, both ears are visible at other animal-themed locations. Because both of its tusks are visible, it is also clear which gender this elephant belongs to (Figure 7). A modest laterite brick-and-mortar wall, with room for an information board and a tiered viewing deck at one end, encircles the elephant carving. Other elephant figures from other sites lack the artistic qualities that distinguish the Ukshi elephant. This elephant carving measures 6 by 6 meters (Garge, Apte & Risbud 2023:347).

Nine carvings at Dewood mainly depict animals, including a lively Indian rhinoceros (Figure 8). Other animals, shown as outlines with one leg visible, seem 'in motion.' All animals have both ears. Near Chave, three human and three animal figures include a headless human with a bulging abdomen, arms, wide legs, and a deep hole symbolizing Mother Earth's fertility, possibly Lajja Gauri. Similar mother goddess images appear on Indus Valley seals, with the Deccan region notable for its devotion to her. Nearby, a figure with half-extended arms and animals suggests a 'Master of Animals' motif. Most worn human carvings are visible, often with animals. A large circle of laterite stones near Chave marks an Iron Age burial site (1500–600 BC). The Rundhe Tali near Rajapur features deeper geoglyph



Figure 7: Life-size carvings of a male Indian elephant (Source: Authors)



Figure 8: 3m x 4m life-size depiction of an Indian rhinoceros (Source: Authors)

engravings, including an elaborate abstract geoglyph with a large oval relief (Figure 9), projections, a cross within circles, and other shapes, displaying precise design at a depth of about 5 cm. Southeast of this, carved legs and motifs such as a tiger, a jellyfish, and legs are seen on three sides of the central panel (Figure 10).



Figure 9: A large oval relief at Rundhe Tali (Source: Authors)

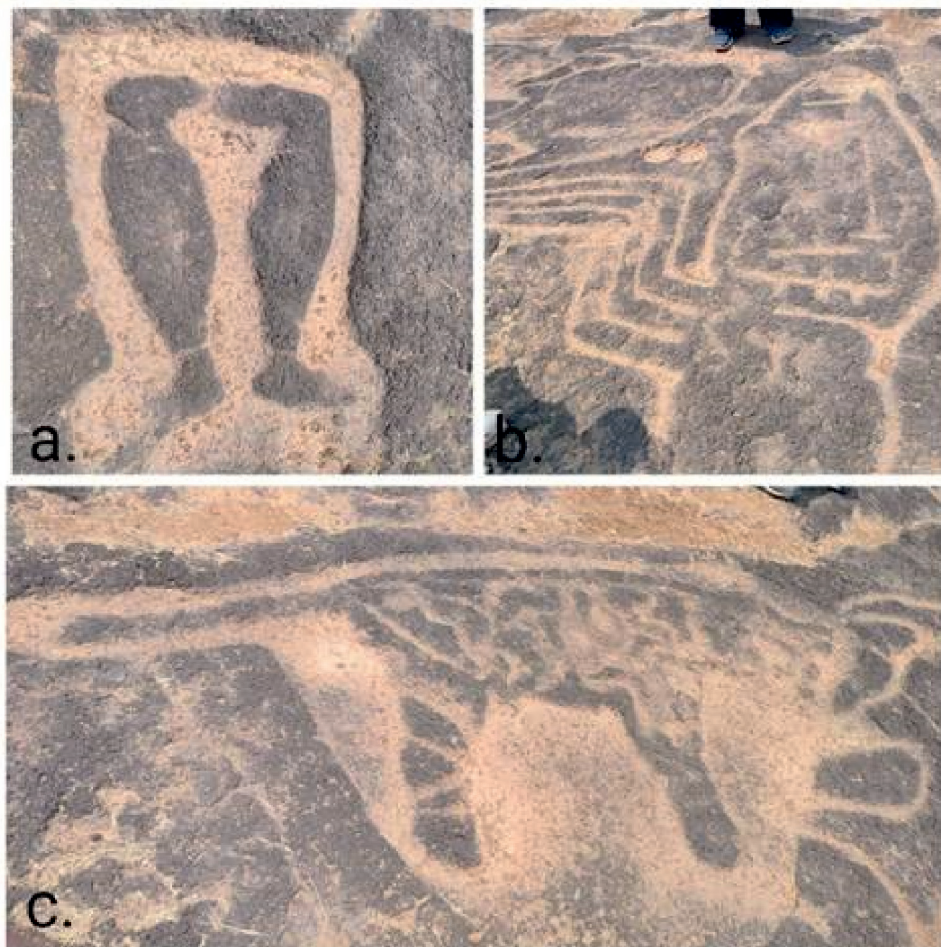


Figure 10: (a) A pair of Legs (b) A Monkey? (c) A Tiger (Source: Authors)

Kasheli is the largest site, with an 18-by-13-meter elephant featuring detailed contours and over 80 animal figurines inside. Outside, carvings are few, depicting the elephant with abstract imagery, aquatic creatures such as sharks and rays, and terrestrial animals such as tigers, monkeys, boars, rhinos, and peacocks, mostly oriented north-south, with heads east. Many appear random (Standage 2019). Barsu Sada, near Rajapur on a steep plateau, dates to around 8,000 BC. Once closer to the coast, it's barren, with scant vegetation, depicting tigers held by human figures with two heads, engraved with geometric designs and fish around their faces. These reflect the 'Master of Animals' theme from Indus Valley seals (2500–1900 BC), often depicting fish and Aquarius, linked to water carriers with jars, as early astronomers noted (Standage 2019). Also present are a person with staff and an abstract carving, alongside other animal and abstract carvings (Figures 11-13).



Figure 11: A person with a stick in each hand (Source: Authors)



Figure 12: An abstract carving (Source: Authors)

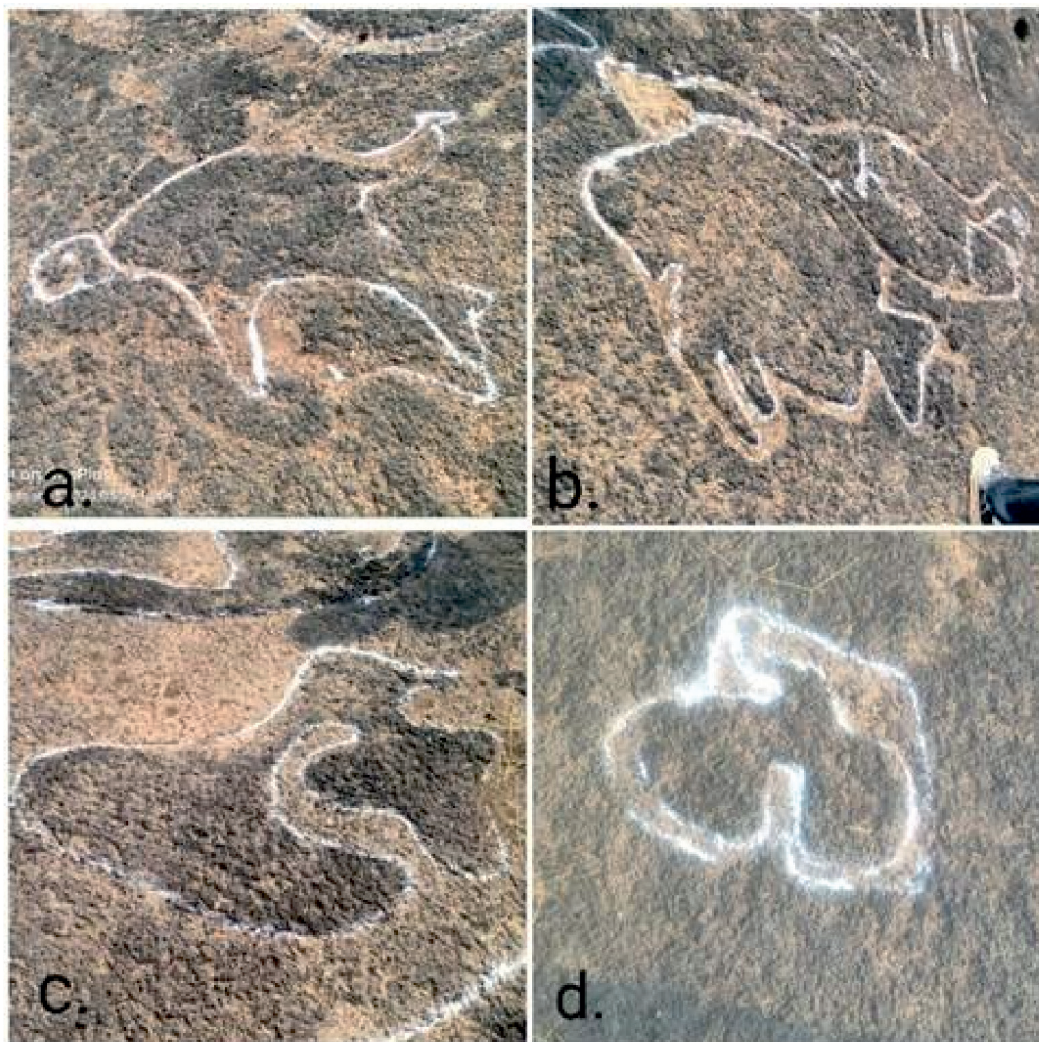


Figure 13: Carvings of animals and abstract design (Source: Authors)



Figure 14: A deity with a headgear? (Source: Authors)



Figure 15: Two people in a meditation position (Source: Authors)

While there, a carved deity, possibly with a headdress, was observed, perhaps for worship (Figure 14). An additional carving shows two people meditating (Figure 15). Over 200 sculptures cover the Barsu Sada plateau, spanning three land borders marked by simple rock piles, complicating documentation. There are ten Kolambe geoglyphs, including human, animal, and abstract shapes. Human figurines are larger than life, animal figurines are life-size, and some carvings feature stylized human figures with double lines resembling X-ray images, about 210 cm tall (Figure 16). Deer is common, depicted with a rounded tail, open mouth, and twin horns, shown from a sectional viewpoint with two visible legs (Garge, Apte & Risbud 2023:350).



Figure 16: A tall human figure (Source: Authors)

Technique, Dating & Context: The Geoglyphs in Konkan were mainly created using hammerstones and pecking, resulting in carvings about 5 cm deep and 2-4 cm wide. Dating is difficult due to lack of cultural evidence and surface scrubbing, but their widespread distribution over 170 km and haphazard production suggest multiple creators over generations (Garge et al., 2018:46). Most sites feature animal carvings, including extinct species like the rhino, which lived in the Deccan until the Chalcolithic age. The absence of horses, domesticated animals, metal weapons, or farming suggests a pre-pastoral Stone Age date. Sites are near water, though ponds often dry by February, with heavy rainfall likely washing cultural material to these sources (Garge et al., 2018:47). Artifacts imply a hunting, fishing, and gathering culture, and microliths at Kasheli, Rundhetai, and Chave indicate

some geoglyphs may date to the Mesolithic era, showing humans lived alongside these animals (Garge, Apte & Risbud 2023:363).

Jaisalmer Region

Geographical location: Jaisalmer, the Golden City in Rajasthan, India, is the largest district in the state and third-largest nationally. Part of the Thar Desert, it borders Pakistan on the northwest, west, and north; Barmer to the south; Jodhpur to the east; and Bikaner to the northeast. The region receives variable rainfall, with less than 100 mm on the west and over 200 mm on the east, with unpredictable distribution and high evaporation rates. Winter temperatures occasionally drop below freezing, while summer highs often exceed 47°C. Soil is generally thin, with sparse natural vegetation of grasses and bushes, and few trees. Northern areas host dense *Lasiurus* grass, indicating potential for drought-resistant plants. Water is scarce, limited to a few aquifers; surface runoff is irregular. Most of the district features shifting sand dunes, and the geological strata range from Precambrian to Quaternary.

Previous works: In India's Thar Desert, ancient geoglyphs (as shown in Figure 1) are etched into the landscape and are visible mainly from above. Among these, the formations in the Thar Desert are the largest known human-made artwork. Boha was discovered by French researchers Carlo and Yohann Oetheimer (Oetheimer & Oetheimer 2021), using Google Earth. A 2016 UAV study showed that some geoglyphs were furrows for tree planting, but others, such as a spiral and a snake near Boha, seem to have ceremonial or religious significance, marked by stripes 20-50 cm wide and up to 10 cm deep. These are near memorial stones and rock cairns depicting Hindu gods Ganesha and Krishna. The site includes nine stone structures, such as cairns, inscribed stones, and markers, honoring a woman who committed sati. Local conservationist P. Jagani supports preservation efforts.

Visited sites: The second and third authors observed geoglyphs during their 2022 visit to the Jaisalmer region. The Boha geoglyphs cover 3.5 by 1.7 km between the Indira Gandhi Canal and Jaisalmer Road. Data is divided into four iconographic units. Boha features large ground-marking



Figure 17: General view of the Geoglyphs, Boha (Source: Authors)

geoglyphs (Figure 17) visible from aerial view (Figure 18), decorated stone pillars (Figure 19), cupule signs, and megalithic burials, indicating complex funerary practices. Ceramics provide insights into daily life and trade. Boha 1, the Giant Spiral, is the largest geoglyph, measuring 724 by 201 meters and featuring a 12 km-long looping line. It has nearly twelve windings, becoming more intricate with each turn. A serpentine geoglyph southwest of it stretches 11 km with lines resembling boustrophedon and a smaller spiral, creating a snake-like figure. The layout includes straight lines, U-shaped turns, and sinuous curves. The region also hosts numerous small geoglyphs, with remnants suggesting lines once extended up to 80 km, though erosion has worn some features.

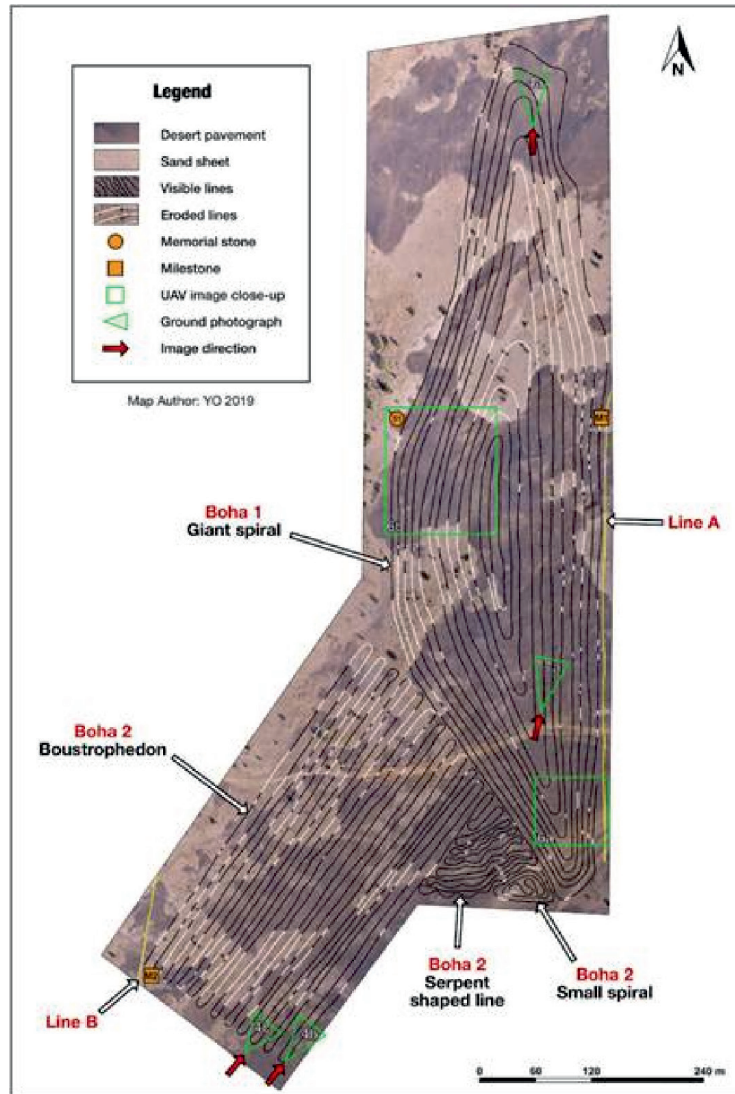


Figure 18: Four iconographic units of Boha (Source: Oetheimer and Oetheimer 2021)

Circular Stone Pillar: Near the geoglyphs are many artifacts, including a striking 1.60-meter truncated conical pillar with an intact base, a large column, and a collapsed top. These may have served as route markers or milestones (Figure 19). Water sources along the route aided travelers. The author believes early people chose this terrain as a resting spot, with some passing away and being buried there, and others having funeral rites there. Artifacts like pottery and bone fragments support this (Tibrewal & Tiwary 2024). Many pillars, some in ruins, are marked with cupules and still stand, indicating their significance in travel and rituals.



Figure 19: General view of the Circular stone pillar near Geoglyphs and Burial, Boha (Source: Authors)

The author found a burial pot at the Siamber site (N 27.01053 ° E 070.45763 °) (Figure 20). Megalithic cairn burials are known in northern India, especially in Jaisalmer. This is perhaps the first such discovery. Megalithic sites in Vidarbha, Maharashtra, resemble Siamber (Figure 21). The site features geoglyphs, decorated circular stone pillars with cupules that indicate ritual use, and inscriptions that reveal language or messages. The ceramics and human bones in an intact pot highlight its historical importance, shedding light on burial customs and material culture. The traveler likely traveled from the West, connecting through the South via the West coast and central India. Selta is famed for its geoglyphs, large ground designs of cultural significance, as well as early historic ceramics depicting daily life and cultural exchanges. Pohada has diverse artifacts, including geoglyphs that expand understanding of this art. The Veer and Sati pillars honor warriors and women, illustrating societal values, while a burial ground further reveals funerary practices.



Figure 20: Intact Human Bone remains in the ceramic, Siamber (Source: Authors)



Figure 21: General view of the megalithic site, Siamber (Prof. Vasant Shinde with local Mr. P. Jagani (in front of him) and Mr. Yasovardhan (on the other side with sunglasses))

Technique, Dating & Context: Because there is no line overlap in the Boha geoglyphs, they probably belong to a single building sequence and were likely created additively. While assigning a precise age from visual cues is tough, these sites are near megalithic structures, pillars, and trade routes, suggesting they are at least 1000 years old, possibly dating to the 9th to 10th century CE. Their purpose remains unclear without more knowledge of the artists, and the patterns might reflect cultural activity rather than pure creativity. The placement of three memorial stones suggests planimetric knowledge was used. More data is needed to understand this enigmatic artwork (Oetheimer and Oetheimer 2021:08).

Comparative Analysis: Konkan vs Jaisalmer

A comparative examination of geoglyph traditions in the Konkan and Jaisalmer regions reveals significant differences in morphology, technique, chronology, and landscape integration. However, beyond these empirical contrasts, a theoretically informed reading, drawing on phenomenology and the concept of taskscape, suggests that these geoglyphs encode fundamentally different modes of human engagement with landscape. Rather than viewing them merely as static designs, this approach interprets geoglyphs as embodied practices, experienced through movement, perception, and repeated social action. Table 3 synthesizes the comparative analysis of Konkan and Jaisalmer geoglyphs, highlighting key differences in morphology, technique, temporality, and landscape engagement within a phenomenological and taskscape framework.

The comparison demonstrates that geoglyph traditions in India are not culturally continuous but represent distinct responses to landscape, shaped by differing ecological settings, technological choices, and social practices. This reinforces the need to interpret geoglyphs as context-specific and processual phenomena rather than as a uniform cultural category.

Morphology and Experiential Form: From a phenomenological perspective, the Konkan and Jaisalmer geoglyphs exhibit different sensory engagements. Konkan geoglyphs, with figurative motifs

Table 3: Comparative Analysis of Geoglyph Traditions-Konkan vs Jaisalmer

<i>Analytical Dimension</i>	<i>Konkan Region</i>	<i>Jaisalmer Region</i>	<i>Interpretative Insight (Theoretical Perspective)</i>
Morphology & Form	Predominantly figurative (animals, anthropomorphic figures, symbolic motifs); bounded compositions	Predominantly geometric and linear (Spirals, serpentine lines, box patterns); expansive layouts, very few faunal figures (animal only)	Konkan emphasizes representation and recognition, while Jaisalmer emphasizes abstraction and spatial continuity
Scale & Visibility	Small to medium scale; visible at ground level	Large to monumental scale; often not fully visible without elevation or traversal	Konkan = proximal, intimate viewing; Jaisalmer = extended, landscape-scale perception
Experiential Mode (Phenomenology)	Encountered through close-range, tactile engagement, meaning revealed gradually through movement across the surface	Experienced through movement along lines; meaning emerges through traversal and processional engagement	Konkan = embodied recognition; Jaisalmer = movement-based experience
Technique of Execution	Reductive (engraving, pecking into laterite); depth-oriented	Additive / surface modification (clearing, arranging materials); surface-oriented	Reflects adaptation to geology; also indicates different modes of labor and intention
Labor Organization	Likely individual or small-group activity; possible episodic creation	Large-scale, coordinated group effort; planned and executed collectively	Konkan = localized action; Jaisalmer = collective, organized taskspace
Taskscape (Ingold)	Repetitive, localized acts of engraving; accumulation over time	Large-scale spatial operations; route-making and connectivity across terrain	Konkan = taskspace of place; Jaisalmer = taskspace of movement
Chronology	Tentatively Mesolithic (prehistoric)	Likely Early Medieval (c. 9 th -10 th century CE), it could be older than this, but not confirm yet	Indicates episodic emergence, not continuous tradition
Temporal Logic	Temporal depth through repeated engagement at a fixed place	Temporal extension through movement across space	Konkan = time accumulated in place; Jaisalmer = time experienced through movement
Landscape Context	Laterite plateaus, near water sources; enclosed and resource-linked settings	Open desert (Thar), expansive terrain; minimal natural markers, mostly near the water source	Landscape shapes perception: enclosed vs open spatial logic
Perception & Spatial Logic	Focused attention on specific engraved surfaces; localized visual fields	Orientation across vast distances; linear continuity guides perception	Konkan = site-specific perception; Jaisalmer = navigational perception
Associated Features	Limited structural association; primarily engravings	Cairns, megaliths, memorial stones, engraved pillars, water points	Jaisalmer integrates geoglyphs into broader cultural landscape systems
Function (Reinterpreted)	Ritual engagement, symbolic representation, repeated interaction	Movement structuring, route marking, commemorative landscapes	Shift from “what they represent” to “what they do in lived experience.”
Memory & Social Meaning	Possible ritual memory embedded in repeated practice	Strong association with memorialization and social remembrance	Jaisalmer = landscape of memory; Konkan = landscape of ritual practice
Mobility Pattern	Linked to localized, seasonal, or subsistence-based movement	Linked to long-distance travel, trade, or desert navigation	Reflects different mobility regimes
Ontological Engagement with Landscape	Place-based, tactile, iterative engagement	Movement-based, expansive, connective engagement	Represents two distinct landscape ontologies
Overall Character	Localized, symbolic, and surface-bound	Expansive, processual, and spatially integrated	Challenges unified notion of “Indian geoglyphs.”

and bounded compositions, are meant for close, ground-level viewing, encountered gradually through bodily engagement, aligning with landscape as experienced rather than observed. These petroglyphs are engraved into the laterite bedrock. In contrast, Jaisalmer geoglyphs, spirals, patterns, and lines operate on a larger scale and are only fully understood from above or after a long traversal. Their meaning emerges through movement along or across the lines, suggesting a performative, processional aspect that possibly serves as a pathway. While Konkan geoglyphs often involve individual effort, Jaisalmer geoglyphs generally involve group effort, emphasizing experience through motion over recognition.

Technique as Embodied Practice: The difference between reductive (Konkan) and additive (Jaisalmer) techniques can be understood via Tim Ingold's concept of taskscape, which sees landscape as shaped by repeated human activities over time. In Konkan, pecking on laterite is labor-intensive, embedding human effort directly into the land, creating a layered record tied to ritual or community practices. Conversely, Jaisalmer geoglyphs involve large-scale, coordinated surface arrangements across distances, emphasizing movement, pathways, and connectivity. These geoglyphs are part of an ongoing landscape of activity, not just static objects.

Chronology and Temporality of Practice: The divergence between the regions emphasizes their distinction as separate taskscapes. The Konkan geoglyphs, likely Mesolithic, originated in a foraging society with seasonal mobility, possibly as part of cyclical habitation and ritual, and gained meaning over generations. Conversely, the Jaisalmer geoglyphs from the 9th to 10th century CE are within a landscape of trade, travel, and memorialization. Their link to cairns, megaliths, engraved pillars, and water sources suggests they were part of a route-based taskscape in which movement across the desert was essential and socially significant. These geoglyphs may have structured or commemorated travel, embedding it into a lasting spatial framework. Thus, Konkan geoglyphs show temporal depth through repeated place markings, while Jaisalmer geoglyphs show temporal extension through movement.

Landscape, Perception, and Spatial Logic: Phenomenologically, the landscapes shape how these geoglyphs are perceived. The Konkan laterite plateaus, with limited elevation and water sources, create enclosed fields focusing attention on specific surfaces and motifs. These geoglyphs are integrated into a landscape tied to subsistence and daily activity. In contrast, the open Thar Desert offers a different perceptual environment, with wide visibility and orientation as key concerns. The Jaisalmer geoglyphs exploit this openness as large spatial anchors, with their linearity guiding movement and perception, making the desert navigable and meaningful.

Function Reconsidered: Beyond Static Interpretation: Viewing through phenomenology and taskscape shifts the focus from “what do geoglyphs represent?” to “what do they do within lived experience?” In the Konkan, geoglyphs likely served as sites of engagement, creating meaning through repeated acts of making, viewing, and ritual. Their figurative nature suggests symbolism, but their importance also lies in the process of making and encountering them. In Jaisalmer, geoglyphs function as infrastructures for movement, organizing travel across the desert. Their link to memorials indicates they also serve as landscapes of memory, where routes are socially inscribed and remembered.

Synthesis: The phenomenology and taskscape reveal that the Konkan and Jaisalmer geoglyphs are not just different in form but represent distinct ontologies of landscape engagement. The Konkan tradition involves place-based, tactile, and iterative interaction with terrain, while Jaisalmer reflects movement-based, expansive, and connective engagement. This challenges the homogenizing category of “Indian geoglyphs,” positioning them as context-dependent practices shaped by specific environmental conditions and social behaviors. Indian evidence shows large-scale landscape inscriptions can be experiential, performative, and embedded in human activity, not just visual. Tables 4 and 5 demonstrate that interpretations based on landscape context and spatial association are more robust than those relying on analogy alone. It also reveals regional differences: Konkan geoglyphs align with ritualized, place-based practices, while Jaisalmer examples depict movement-oriented, commemorative landscapes.

Table 4: Graded Interpretative Framework for Geoglyph Functions in India

<i>Category</i>	<i>Interpretation</i>	<i>Description</i>	<i>Supporting Evidence</i>	<i>Regional Applicability</i>	<i>Theoretical Alignment</i>	<i>Limitations / Issues</i>
Highly Probable	Landscape Marking & Spatial Organization	Geoglyphs function as markers structuring movement, orientation, or spatial cognition within the landscape	Association with pathways, water sources, cairns, and open terrain; large linear patterns in Jaisalmer	Strong in Jaisalmer; moderate in Konkan	Taskscape (movement, route-making); spatial archaeology	Lack of direct ethnographic confirmation
Highly Probable	Ritualized Landscape Practices	Geoglyphs as sites of repeated ritual or symbolic activity embedded in daily life	Presence of anthropomorphic figures, fertility motifs, repeated engraving, proximity to habitation/resource zones	Strong in Konkan; limited in Jaisalmer	Phenomenology (embodied experience); ritual landscape theory	Interpretation depends on the symbolic reading of motifs
Possible	Territorial / Boundary Markers	Used to demarcate zones of control, identity, or social boundaries	Large scale, visibility, strategic placement in open areas	Possible in both regions	Landscape archaeology; social space theory	No clear boundary patterns or settlement correlation
Possible	Resource Indicators (Water / Subsistence)	Markers indicating water availability or ecological resources	Proximity to seasonal water bodies, ponds, or fertile zones	More relevant in Konkan; limited in desert zones	Ecological archaeology; taskscape (Subsistence patterns)	Symbolic complexity suggests a function not purely utilitarian
Possible	Commemorative / Funerary Landscapes	Associated with memory, death, or social remembrance practices	Presence of cairns, memorial stones, sati pillars, and burial evidence (Jaisalmer)	Stronger in Jaisalmer	Memory studies; phenomenology (landscape as memory)	Not uniformly present across all sites
Speculative	Astronomical Alignments	Designed to align with celestial bodies or events	Analogies with Nazca and other global examples	Weak in both regions	Could be evidence of “Astrock Art”	No consistent alignment data; lacks empirical testing
Speculative	Hunting Traps / Functional Structures	Used as animal traps or hunting aids	Theoretical parallels with Middle Eastern “desert kites.”	Very weak in the Indian context	Functionalist archaeology	Morphology does not support the trapping function
Speculative	Aerial Visual Art	Created primarily for viewing from above	Based on modern perception of geoglyphs (e.g., Nazca)	Weak in both regions	Visuality studies	Anachronistic; ignores ground-based experience

Table 5: Tentative Purposes of Geoglyphs in India and Global Context (with Focus on Konkan and Jaisalmer)

<i>Category</i>	<i>Interpretation / Purpose</i>	<i>Description</i>	<i>Global Evidence</i>	<i>Konkan Region (India)</i>	<i>Jaisalmer Region (India)</i>	<i>Theoretical Alignment</i>	<i>Assessment</i>
Highly Probable	Landscape Marking & Spatial Organization	Structuring space, guiding movement, organizing terrain	Nazca lines (Peru), Atacama routes (Chile), Arabian desert lines	Moderate evidence; located on plateaus near resource zones	Strong evidence: linear forms, spirals, route-like patterns, association with cairns and water points	Taskscape (movement, spatial practice)	Highly Probable
Highly Probable	Ritual / Ceremonial Landscapes	Sites of ritual performance, symbolic activity, or sacred space	Nazca ceremonial pathways, Amazonian ritual earthworks	Strong evidence: anthropomorphic figures, fertility motifs, repeated engraving	Limited but possible; less figurative, more spatial	Phenomenology (embodied experience), ritual landscape theory	Highly Probable (Konkan), Possible (Jaisalmer)
Possible	Commemorative / Funerary Landscapes	Associated with memory, death, or ritual remembrance	Andean burial associations, cairn-linked geoglyphs (Sanchez-Borjas et.al. 2024:130)	Weak evidence; limited burial association	Stronger evidence: presence of memorial stones, sati pillars, cairns, burial sites	Memory studies; phenomenology (landscape as memory)	Possible (Konkan), Highly Probable (Jaisalmer)
Possible	Territorial / Boundary Markers	Demarcation of social or cultural territories	Australian Aboriginal stone arrangements, North American effigy mounds	Possible; large visible engravings	Possible; large-scale desert visibility	Social space theory; landscape archaeology	Possible

<i>Category</i>	<i>Interpretation / Purpose</i>	<i>Description</i>	<i>Global Evidence</i>	<i>Konkan Region (India)</i>	<i>Jaisalmer Region (India)</i>	<i>Theoretical Alignment</i>	<i>Assessment</i>
Possible	Resource Indicators (Water / Subsistence Zones)	Marking the availability of water, food, or ecological resources	Atacama geoglyphs linked to caravan routes and water sources	Moderate; proximity to seasonal ponds and plateaus	Moderate; near desert water sources and travel routes	Ecological archaeology; taskscape (Subsistence)	Possible
Speculative	Astronomical Alignments	Alignment with celestial bodies or events	Nazca lines (debated), Stone alignments globally	No strong evidence	No consistent alignment patterns	Archaeoastronomy	Speculative
Speculative	Communication Systems / Symbolic Codes	Conveying messages or symbolic information across the landscape	Some Amazonian and Andean interpretations	Possible but unverified; symbolic motifs present	Weak; mostly geometric patterns	Cognitive archaeology	Speculative
Speculative	Hunting Structures / Animal Traps	Used to direct or trap animals (e.g., desert kites)	Middle Eastern “desert kites”	Not supported by morphology	Not supported	Functionalist archaeology	Speculative
Speculative	Aerial Display / Visual Art	Designed for viewing from above	Nazca (modern interpretation bias)	Unlikely; ground-based engagement evident	Unlikely; experiential movement more important	Critiqued by phenomenology	Speculative

Research Problem: Continuity, Memory, or Reinvention?

A key unresolved issue in Indian geoglyph research concerns their chronological and cultural development: do these traditions persist continuously, or are they episodic reappearances driven by specific historical circumstances? The stark difference between the seemingly ancient geoglyphs in the Konkan region and the relatively recent, potentially colonial-era formations in Jaisalmer prompts important questions about cultural transmission and discontinuity. If these are separated by large chronological gaps, it’s crucial to consider whether these traditions are connected through cultural memory, where landscape inscriptions are preserved, adapted, and revived through generations, or if they are independent innovations that emerge from similar human interactions with the environment, space, and mobility, but under different contexts.

This issue is further complicated by the lack of direct textual or ethnographic evidence, which makes it challenging to trace transmission or influence. From a theoretical perspective, it prompts broader questions about how landscapes are remembered and redefined over time: whether through persistent taskscapes where practices evolve gradually, or through disrupted traditions, with similar forms developing independently in response to shared ecological and social needs. Addressing this is essential not only for understanding Indian geoglyphs but also for placing them within global discussions on the origins, functions, and meanings of large-scale landscape modifications. Therefore, this study treats geoglyphs as a problem of temporality, memory, and practice, examined through comparative regional case studies.

Conservation and Preservation

Restoration and preservation are crucial for safeguarding the cultural, historical, and archaeological importance of geoglyphs. Conservation involves distinguishing between natural deterioration and human-caused damage. Human activities such as infrastructure projects, mining, religious events, and vandalism contribute significantly more than natural weathering. Visitors can unintentionally harm these fragile surfaces by walking on them; therefore, wearing appropriate footwear, such as broad-platform sandals, is advised to reduce impact. In the Konkan area, accidental marks can obscure original shapes. It’s vital

never to modify geoglyphs without permission and to keep the surroundings undisturbed. Community involvement plays a key role in effective conservation. An example of proactive conservation is at Ukshi, where an elephant carving is protected by a laterite-brick wall and a tiered viewing platform, reflecting its value as a tourist draw and a local income source. On the other hand, activities like road building and mining threaten these sites. The laterite mining at Chave Dewood causes permanent harm, although local authorities sometimes intervene, halting mining or urging landowners to erect protective walls. Advanced technology, such as drones, satellite imagery, and LiDAR, is vital for documenting and digitally preserving geoglyphs by enabling detailed three-dimensional mapping to monitor changes over time. Education campaigns, including museum displays and school programs, further support preservation efforts. In Konkan, ongoing projects visit schools to teach students how to recognize and document geoglyphs. Regular maintenance activities—such as removing trash, repairing damage from natural events, and controlling vegetation—are essential to prevent issues from worsening. A comprehensive approach combining modern technology, legal protections, and community participation can ensure these cultural treasures are preserved for future generations.

Conclusion

This study explores India's geoglyph traditions, focusing on the Konkan and Jaisalmer regions, using an integrated approach that combines morphological analysis, landscape context, and theoretical interpretation. Although the empirical data show notable regional differences in form, technique, and age, applying phenomenology and the idea of taskscape provides a richer understanding of these features as dynamic human-landscape interactions rather than mere static visual artifacts.

The Konkan geoglyphs, marked by figurative designs and simplified engraving techniques, exemplify a place-based engagement where meaning was created through repeated local inscriptions on laterite plateaus. Their links to water sources, subsistence zones, and microlithic artifacts suggest they were part of a cyclical taskscape involving foraging, rituals, and seasonal movements. From a phenomenological viewpoint, these geoglyphs were likely experienced through close-range interaction, with their forms gradually shaped by bodily movement across the terrain, emphasizing their roles as sites of encounter and performative engagement. Conversely, the geoglyphs in Jaisalmer, especially those at Boha, present a different landscape practice. Their large, geometric, linear designs, spanning kilometers, indicate a movement-focused taskscape centered on routes, connectivity, and spatial orientation in the Thar Desert. Their association with memorial stones, cairns, and water points suggests they served not only as movement markers but also as landscapes of memory and remembrance, in which travel carried ritual significance.

Phenomenologically, these features highlight processional experience and extended perception, shifting emphasis from localized viewing to spatial immersion. The stark differences between these regions challenge the idea of a single or continuous Indian geoglyph tradition. Instead, the evidence indicates episodic, context-specific practices influenced by environmental, technological, and socio-cultural factors. Indian geoglyphs do not conform to a unified typology like the Nazca lines; they demonstrate how large-scale landscape inscriptions can develop independently under varying historical and ecological conditions, adopting diverse forms and functions. More broadly, this research enriches the global discussion on geoglyphs by stressing their experiential and processual dimensions. It suggests that geoglyphs should be understood not just as representations or visible features from above, but as embodied practices rooted in lived landscapes, where meaning arises through movement, repetition, and social interaction. This perspective opens new possibilities for interpreting large archaeological features, especially where direct textual or ethnographic data are lacking. The study also notes methodological challenges in dating, functional interpretation, and preservation.

The lack of stratified contexts and site vulnerability to natural and human threats call for advanced documentation methods, such as drone surveys, GIS analysis, and LiDAR mapping, combined with community-based conservation efforts. In conclusion, India's geoglyphs, far from marginal or anomalous, form a vital but understudied part of the country's archaeological heritage. When examined through frameworks such as phenomenology and taskscape, these features reveal that landscapes were not only inhabited but also actively constructed, experienced, and remembered. Future research using interdisciplinary and technological approaches can deepen understanding of these relationships and better integrate Indian geoglyphs into both regional and global archaeological narratives.

References

- Amit Kumar & Abhishek Prasad 2025. The Study of "Chikki Kabaddi", an Indian Folk Game from Psychological and Physiological Perspective, *Society and Culture Development in India*, 5: 1, pp. 1-12.
- Arindam Chaturvedi 2025. Aesthetics of Hunting: A Neuro-Aesthetical Study of A Mesolithic Rock-Art of Bison-Hunting at Bhimbetka. *Man in India*, 105: 1-2, pp 1-12
- Arup Majumder 2025. Anthropogenic Impact of Climate Change: A Case Study from the Sundarbans. *Studies in Indian Anthropology and Sociology*, 2: 2, pp. 151-165.
- Bednarik, R. G. 2001. *Rock Art Science: The Scientific Study of Palaeoart*. Turnhout: Brepols.
- Bikoulis, P., Gonzalez-Macqueen, F., Spence-Morrow, G., Alvarez, W. Y., Bautista, S., & Jennings, J. 2018. Ancient pathways and geoglyphs in the Sihuas Valley of southern Peru. *Antiquity* 92(365): 1377–1391. <https://doi.org/10.15184/aqy.2018.197>.
- C. J. Sonowal 2025. Empowered or Excluded: Female Puberty and the Contested Liminalities of Rites of Passage. *South Asian Journal of Social Sciences*, 1: 2, pp. 183-202.
- Chatterjee, P. C., & Kar, A. (eds.). 1992. *Integrated Natural and Human Resources Appraisal of Jaisalmer District*. CAZRI Publication No. 39. Jodhpur: Central Arid Zone Research Institute.
- Chetry, A.T. 2023. Locating Mughal State Formation in the Himalayan Region: Two Regional Case Studies. *Journal of History, Art and Archaeology*, 3: 1, pp. 47-57.
- Chonchuila Magdalene CS & Vikram Singh 2025. Tribal Education and Identity Negotiation in Northeast India: Sociological Analysis of the Tangkhul and Maram Communities. *SAARC Journal of Social Science*, 3: 2, pp. 73-87.
- Clarkson, P. B. 1998. Archaeological imaginings: Contextualization of images. In D. S. Whitley (ed.), *Reader in Archaeological Theory: Post-Processual and Cognitive Approaches*, 119–130. London/New York: Routledge.
- Dalvi, D. 1990. *Maharashtratil Leni*. Mumbai: Granthali Publication.
- David, B., McNiven, I. J., Mura Badulgal Corporation Committee, Crouch, J., & Brady, L. 2004. The Argan stone arrangement complex, Badu: Initial results from Torres Strait. *Australian Archaeology* 58(1): 1–6. <https://doi.org/10.1080/03122417.2004.11681773>.
- De Souza, R. B. 2024. The pre-Columbian roads of geoglyph sites in the state of Acre: The Tequinho Site Road Complex. *Journal of Historical Archaeology & Anthropological Sciences* 9(1): 44–53. <https://doi.org/10.15406/jhaas.2024.09.00297>.
- Garge, T. M., Kulkarni, B. V., Apte, R. R., & Risbud, S. 2018. Petroglyphs in Konkan: Historiography, recent discoveries and future endeavours. *Purakala* 27–28: 39–47.
- Garge, T., Apte, R., & Risbud, S. 2023. Faunal world reflected in petroglyphs from Ratnagiri District, Maharashtra. In S. Joshi & K. Sharma (eds.), *Animals in Archaeology: Integrating Landscapes, Environment and Humans in South Asia*, 341–364.
- Ghanekar, P. K. 1995. *Koknatil Paryatan*. Pune: Snehal Prakashan.
- Gogate, V., Pradhan, S., & Shirvalkar, P. 2008. Anthropomorphic engravings of Pomendi. *Journal of Indian Ocean Archaeology* 5: 115–123.
- Hirst, K. Kris. 2018. Geoglyphs: Worldwide ancient art of the landscape. *ThoughtCo*. Updated 6 December 2018. Available online.
- Ingold, T. 1993. The temporality of the landscape. *World Archaeology* 25(2): 152–174. <https://doi.org/10.1080/00438243.1993.9980235>.
- Ingold, T. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London: Routledge.

- Islam, F. 2023. Cultural Change and Adaptation of Munda Tribe of Bangladesh: A Socio-Anthropological Analysis, *Indian Journal of Anthropological Research*, 2: 2, pp. 139-156.
- Kabiraj Behera 2025. Indigenous Knowledge, Biotechnology and Environmental Sustainability: A Study on the Paraja tribe of Koraput District, Odisha. *Indian Social Development Review*, 1: 2, pp. 147-174.
- Kothare, A. R. [Rane-Kothare, Anita]. 2013. Discovery of new petroglyphs and evidences of cartography on the south western coast of Maharashtra State. *Indica* 50(1-2): 156-164.
- Lalit Ranjan Sahu 2026. Rock Art Sites of Hemgir Block, Sundargarh District, Odisha: A Geological Perspective. *South Asian History, Culture and Archaeology*, 6: 1, pp. 1-7.
- Lalit, S. 2013. Petroglyphs discovered on laterite in coastal district Sindhudurg in Maharashtra. *Purakala* 23: 69-72.
- Lambers, K. 2020. Walking and marking the desert: Geoglyphs in arid South America. In V. Klinkenberg, R. van Oosten, & C. van Driel-Murray (eds.), *A Human Environment: Studies in Honour of 20 Years Analecta Editorship by Prof. Dr. Corrie Bakels*, 89-105. Leiden: Sidestone Press.
- López, Gori-Tumi E., & Tiwary, S. K. 2025. Geoglyphs: A phenomenological approach. *Rock Art Research* 42(1): 3-17. <https://doi.org/10.69978/rar.v42i1.534>.
- Mailland, F. 2012. Geoglyphs: Origin and meaning. In *The Intellectual and Spiritual Expression(s) of Non-Literate Peoples*, 149-154. Capo di Ponte: UISPP-CISNEP.
- Nishikanta Dwibedi 2025. Typo-Technological Analysis of Middle Palaeolithic Assemblage in the Upper Baitarani Valley, Keonjhar District, Odisha, *Man, Environment and Society*, 6(2), pp. 209-240.
- Oetheimer, C., & Oetheimer, Y. 2021. New enigmatic geoglyphs in the Indian Thar Desert: The largest graphic realizations of mankind? *Archaeological Research in Asia* 27: 100290. <https://doi.org/10.1016/j.ara.2021.100290>.
- P. Vijaya Prakash 2025. Geoarchaeology of Cuddapah Basin and Eastern Peneplains in Peninsular India: An Oasis of Prehistoric Cultural Progression. *Journal of Archaeological Studies in India*, 4: 2, pp. 175-200.
- Richter, C., Teichert, B., & Pavelka, K. 2021. Astronomical investigation to verify the calendar theory of the Nasca Lines. *Applied Sciences* 11(4): 1637. <https://doi.org/10.3390/app11041637>.
- Riemer, H. 2007. Prehistoric trap hunting in the eastern Saharan deserts: A re-evaluation of the game trap structures. In H. Riemer, F. Förster, M. Herb, & N. Pöllath (eds.), *Desert Animals in the Eastern Sahara: Status, Economic Significance, and Cultural Reflection in Antiquity*, 175-188. Cologne: Heinrich-Barth-Institut.
- Ruggles, C. L. N., & Saunders, N. J. 2012. Desert labyrinth: Lines, landscape and meaning at Nazca, Peru. *Antiquity* 86(334): 1126-1140. <https://doi.org/10.1017/S0003598X00048298>.
- Sanchez-Borjas, A., Mesia-Montenegro, C., & Narvaez-Luna, J. 2024. Geoglyphs in the Andean Central Coast: Combining digital and traditional survey techniques. *Antiquity* 98(402): e35. <https://doi.org/10.15184/aqy.2024.130>.
- Shivansh Tiwari & Krishna Mohan Dubey 2026. Recent Archaeological Exploration at Shivasewak Patti and Tikri, Sant Ravidas Nagar Bhadohi District, Uttar Pradesh. *Journal of History and Archaeology*, 2: 1, pp. 9-22.
- Shivansh Tiwari 2026. Archaeological Exploration of Vindhyachal Region: A Study of Sacred Landscape and Cultural Continuity. *Journal of Studies in South Asia*, 2: 1, pp. 1-21.
- Standage, K. 2019. *Kevin Standage – An Indian Travel Photography Blog*. Available online.
- Tengnang D. Sangma & Queenbala Marak 2025. Semiotics in Music: A Study on Traditional Music of the Garos of West Garo Hills, Meghalaya, *Journal of South Asian Research*, 3: 2, pp. 227-235.
- Tibrewal, T., & Tiwary, S. K. 2024. Mysteries in the desert: A brief study of Jaisalmer's geoglyphs. *History Today* 25: 180-186.
- Tiwary, S. K., & Krishnamurthy, S. 2011-12. Rock art by early man: Origin, purpose and variety. *Kala Vaibhava* 20: 201-212.
- Valenzuela, D., & Clarkson, P. B. 2014. Geoglyphs. In C. Smith (ed.), *Encyclopedia of Global Archaeology*, 3017-3029. New York: Springer. https://doi.org/10.1007/978-1-4419-0465-2_1625.
- Vijay Kumar 2026. Resources for Fort Making in a Hilly Religious Landscape: A Study of Vindhyachal Since Historical Times. *Journal of History, Archaeology and Architecture*, 5: 1, pp. 25-39.
- Vrinda Mohan P. 2025. Sacred Shame: Menstrual Hygiene, Cultural Superstitions, the Path to Menstrual Justice. *Journal of Contemporary South Asia*, 1: 2, pp. 139-159.
- Werlthof, J. von. 1995. Geoglyphs in time and space. *Estudios Fronterizos* 35-36: 73-81. <https://doi.org/10.21670/ref.1995.35-36.a04>.