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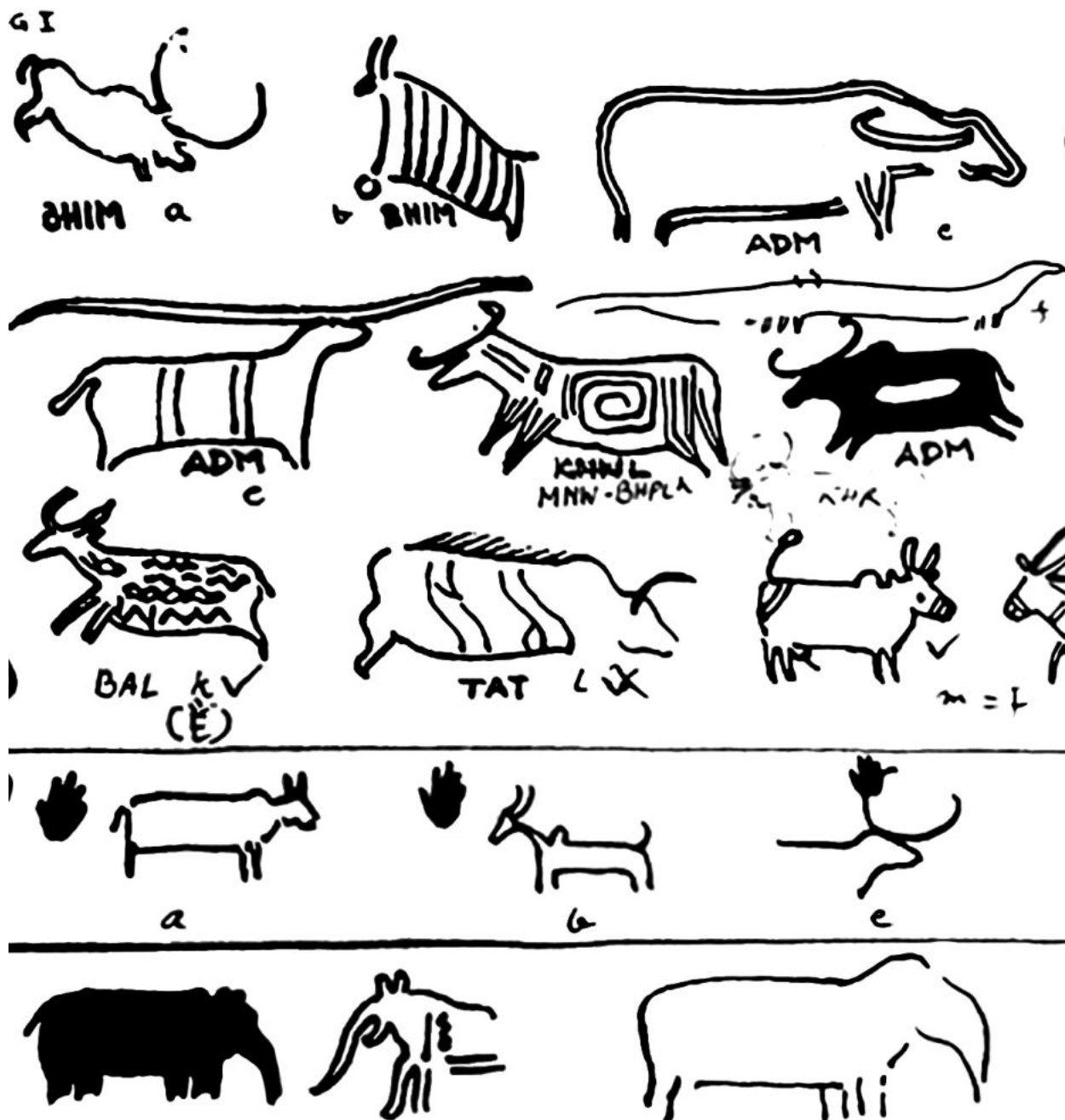
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Quilcas de la India, en los apuntes de investigación del Dr. Vishnu Shridhar Wakankar, pionero y fundador de la investigación rupestre india (Ver artículo de Sachin Kr. Tiwary & Gori-Tumi Echevarría-López en esta edición, pp. 1279-1282). / Rock art from India, in the notes of Dr. Vishnu Shridhar Wakankar, pioneer and founder of Indian rock research (see article of Sachin Kr. Tiwary & Gori-Tumi Echevarría-López in the present edition, pp. 1249-1260).



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Vishnu Shridhar Wakankar, padre de la investigación rupestre india*

SACHIN KR. TIWARY & GORI-TUMI ECHEVARRÍA-LÓPEZ

Introducción

El Dr. VS Wakankar, conocido popularmente como Haribhau, se hizo mundialmente conocido por su descubrimiento de las quilcas o el arte rupestre en las cuevas y abrigos rocosos de Bhimbetka (distrito de Raisen, Madhya Pradesh, India), que posteriormente obtuvo la distinción de Patrimonio de la Humanidad. El 23 de marzo de 1957, fue la oportunidad que tocó la puerta del Dr. Wakankar. Mientras iba a Nagpur desde Bhopal, se encontró con unos montículos con enormes rocas. Después de preguntar a los compañeros de viaje, se enteró de que estos se conocían como los refugios rocosos de Bhimbetka, en los que posiblemente existían algunas grutas con pictogramas. Según Indurkar (2003), saltó de su compartimento porque el tren no tenía estación allí. Este salto estuvo destinado a llevar el arte rupestre indio en una nueva dirección. En un verdadero sentido, fue el descubridor del arte rupestre de Bhimbetka, aunque en 1888, Mr. Kinked, un agrimensor británico, había hecho un comentario de pasada sobre estas rocas pintadas.

El Dr. Wakankar narra sobre su descubrimiento en una entrevista a K. L. Kamat como, “En 1957, iba de Bhopal a Itarsi en tren y sentí que las montañas escondían una gran historia en ellas. Bajé en la siguiente estación y caminé hasta aquí. ¡La primera cueva en la que entré tenía pinturas! Este lugar tiene artefactos que datan de hace 500,000 años.” Se paró en un montículo y dijo: “Esta es una estupa budista, hay dos de estas. El séquito del emperador Ashoka debe haber venido por aquí. ¿Ven esas ruinas de allí? Son los restos de una presa construida por el rey Bhojaraja. Él había construido el lago más grande de su tiempo. Los barcos podrían venir aquí desde Bhopal”. Hizo una pausa. “Este lugar es arqueológicamente importante no solo desde el punto de vista de la India, sino también desde el de la humanidad”. El sitio que descubrió se colocó en 2003 en la Lista del Patrimonio Mundial de la UNESCO.

Vida personal

Vishnu Shridhar Wakankar nació el 4 de mayo de 1919 en Neemuch, un pueblo en la región de Malwa del estado indio de Madhya Pradesh, y murió el 3 de abril de 1988. Su familia proviene de Ujjain y es una familia respetada, ilustre y de renombre. El Dr. Wakankar era un artista por educación (G. D. Art of Mumbai), sin embargo, se movió a historia/prehistoria, arqueología y numismática y ganó fama mundial por sus contribuciones en arte, arqueología, trabajo social y como luchador por la libertad. Su hermano mayor, el difunto Laxman Shridhar Wakankar, era ingeniero químico de la Universidad Hindú de Banaras. La familia Wakankar registra una historia desde 1700 CE, que abarca más de ocho generaciones. El Dr. Wakankar trabajó con personalidades eminentes como el Dr. Sankalia, el Sr. Mortimer Wheeler, el Sr. K. K. Lele, el Sr. S. K. Dikshit, el

Sr. Jerry Jacobson, el Sr. N. R. Banerjee, el Dr. S. B. Deo, el Dr. Dhavalikar, el Dr. Tilner, Prof. Deen Glanial, Prof. Allchio, Dr. Burkitt, Dr. Zeunner, Prof. A. Leroi Gourham, entre otros.

Junto a su impresionante contribución en el campo de la arqueología, siendo artista, organizó varias exposiciones de arte en Jaipur (Rajasthan), Ujjain, Indore, Khairagarh (Madhya Pradesh), y también en el extranjero en Austria, Roma, París, Frankfurt y América.

Educación y carrera

Vishnu Shridhar Wakankar era un hombre bien educado, obtuvo su diploma de graduación de Mumbai, M. A. de Madhya Pradesh y su Ph. D. de Deccan College, Pune, Maharashtra. Ocupó cargos importantes en varios institutos académicos y estuvo cercanamente relacionado con ASI, siendo director de Bharati Kala Bhavan, Centro de Investigación de Arte Rupestre y presidente fundador de Wakankar Bharati Sanskriti Anveshan Nyas. Logró varias becas, premios y fue invitado por diversas instituciones a dictar conferencias, tales como; Beca Dorabjee Tata Trust para educación en Francia (1963), beca del gobierno francés para investigación en Sorbonne, Francia (1961-63), invitación de EE. UU. para estudios en refugios rocosos norteamericanos (1966); presentación de ponencia en Capo de Ponte-Italia (1981), exposición sobre “La contribución de la India al Mundo” en EE. UU. (1984), o estudios sobre la civilización Maya y Azteca en EE. UU. (1984). El Dr. Wakankar también fue un luchador activo por la libertad y recibió numerosos premios de gran prestigio, incluido el Padmashree en el año 1975, que es uno de los más altos honores civiles del país, por parte del Gobierno de la India.

Fue fundador y director de la All India Kalidas Paintings and Sculptures Exhibition y ocupó varios cargos, tales como Director de Bharat Kala Bhawan, Lalit Kala Sansthan, Rock Art Institute, Ujjain; Director del Departamento de Excavaciones del Museo Arqueológico, Universidad Vikram, Ujjain; Prantiya Boudhik Pramukh de R.S.S. Madhya Bharat Founder y ex presidente Sarasvati Shishu Mandir, Ujjain; Secretario General, Sanskar Bharati, India; Presidente, Sociedad Teosófica, Ujjain; Patrón, Kala Patrika Akar, Ujjain; Jefe, Babasaheb Apteltihis Sankalan Samiti, (M. P. y Gujrat); Presidente, Vidyarthi Parishad, Madhya Pradesh, etc.

Sus descubrimientos

Los sitios con quilcas de Bhimbetka, a unos 45 kilómetros al sureste de Bhopal, se han vuelto famosos y siempre se mencionan cada vez que se alude al arte rupestre indio. Fueron descubiertos y revelados al mundo por el Dr. Wakankar desde 1957, quien documentó, dispersos en siete colinas, un complejo que comprende más de 700 refugios de arenisca con pictogramas. Pero Bhimbetka no necesita descripción.

Siendo él mismo un artista bien establecido, el Dr. Wakankar dibujó casi todas las figuras que el hombre antiguo había pintado en las rocas de los refugios y las estudió analíticamente, lo que le permitió clasificar sus estilos y datarlos cronológicamente. Estos refugios son

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Figura 1. Dr. Vishnu Shridhar Wakankar



ejemplos de los primeros asentamientos humanos en la India. El Dr. Wakankar trabajó incesantemente en estas pinturas durante un período bastante largo, habiendo considerado este tema para un trabajo de doctorado; no obstante, en lugar de restringir su investigación solo a las quilcas de Bhimbetka, optó por cubrir todos los refugios rocosos pintados del país. Le preocupaba profundamente la falta de conciencia en el estudio, documentación y conservación de las diversas evidencias rupestres dsitribuidas por toda la India.

En corto, el Dr. Wakankar cubrió 36 regiones de la India, que abarcan casi todo el país, enumerando en su trabajo 1532 refugios rocosos, principalmente de Uttar Pradesh, Madhya Pradesh, Chhattisgarh, Odisha y Karnataka. A partir de 1957, realizó un extenso trabajo de campo registrando sitios con quilcas o arte rupestre en la India y en el exterior, incluyendo Reino Unido, Austria, Francia, Italia, Alemania, España, Grecia, México, Egipto y Estados Unidos. Se estima que descubrió y documentó el menos 4.000 sitios con quilcas sólo en la India. Según el Dr. Jean Clottes, su distinguida carrera académica le valió el título de “el Pitamaha del arte rupestre en la India”.

Como indólogo

El Dr. Wakankar participó en numerosos estudios arqueológicos; exploró los barrancos de los ríos Chambal y Narmada, además de rastrear la cuenca del río Saraswati, ahora seco, que se dice que guarda secretos para gran parte de la civilización india. Realizó y participó en varias excavaciones tanto en la India como en el extranjero, como las realizada en Maheshwar (1954), NavadaToli (1955), Manoti (1960), Awara (1960), Indragadh (1959), Kayatha (1966) Bhimbetka (De 1971 a 1978), Madsaur (1974 y 1976), Azadnagar (1974), Dangwada (1974 y 82), el sitio romano de Verconium en Inglaterra (1961), Incoliev en Francia (1962); y Runija (1980).

Paralelamente, el Dr. Wakankar estableció el Trust de Investigación Cultural Indológica de Wakankar en Ujjain, India, que todavía está en funcionamiento. Hoy en día es uno de los cuerpos académicos y ONG muy importantes de la región.

Un experto en el campo de la numismática y la epigrafía, el Dr. Wakankar, ha recopilado y estudiado alrededor de 5500 monedas que van desde el siglo V aEC. en adelante. Esta es la colección de orgullo del “Wakankar Shodh Sansthan”. El Dr. Jagannath Dubey, el Dr. Murali Reddy, y el difunto Sr. Narayan Bhatiji han contribuido inmensamente a la hercúlea y minuciosa tarea de recopilación y estudio de esta colección. Hoy en día se posee más de 15000 monedas, una colección de 250 inscripciones en sánscrito y lenguas Prakrit y Brahmi; y más de 7500 bocetos de pinturas de arte rupestre esbozados por el propio Dr. Wakankar, que enriquecen los fondos del “Wakankar Shodh Sansthan”.

Publicaciones

Ha publicado seis libros y más de 400 trabajos de investigación. Sus coautores y colaboradores son el Dr. Surendra Kumar Arya, la Dra. (Sra.) DaljitKhare, el Dr. Girish Chandra Sharma, el Dr. Narayan Vyas, el Dr. Giriraj, el Sr. Kailash Pande, el Sr. Pancholiji, el Dr. Jitendradutta Tripathi, la Dra. Bharati Shrotri, la Dra. Meenakshi Dubey Pathak; así como el Sr. U. N. Mishra, el Sr. LotharBanke, el Sr. Irwin Mayer y el Sr. Robert Brooks. Algunos de los

artículos importantes incluyen títulos como “Prehistoric Cave Paintings” publicado en *Marg* vol. 28 n° 4 (1975); “Bhimbetka-The Prehistoric Paradise” en *Prachya Pratibha* vol. 3, n° 2 (1975); “Chalcolithic Cultures of Malwa”, en *Prachya Pratibha* vol. 4, n° 2 (1978); “The Oldest Works of Art”, en *Science Today* vol. 20 (1978); y algunos libros seleccionados como *Stone Age Paintings in India*, en coautoría con R. R. Brooks y publicado en 1976 por D. P. Taraporawala Sons and Co., Bombay; y su Ph.D. tesis publicada en 2005, titulada *Painted Rock Shelters of India* por la Dirección de Arqueología, Archivo, Museo, Gobierno de Madhya Pradesh, Bhopal.

Aniversario por su nacimiento

El aniversario de su nacimiento se inició en mayo de 2019. A la luz de todos sus logros para la nación india y el mundo, se publicó, el año 2021, el libro *Universal Value of Rock Art, Celebrating Birth Centenary of Dr. Vishnu Shridhar Wakankar* (Fig. 2) para mostrar nuestra sincera gratitud a este gran erudito. De hecho, el propósito de este artículo es recordar a los lectores que, aunque el Dr. Wakankar no está físicamente entre nosotros, sus textos y su luz creativa viven como una guía para un mejor estudio de las quilcas o el arte rupestre. Nos hará muy felices saber que los lectores de este libro podrán conocer las ideas y los planteamientos del Dr. Wakankar y, al mismo tiempo, podrán continuar con su legado, tanto en la investigación, protección y revalorización del arte rupestre indio, como del mundo entero.

Conclusión

Tenemos la impresión que el propósito mismo del nacimiento del Dr. Wakankar ha sido mejorar la investigación de las quilcas o el arte rupestre. Tenía un impulso indomable por los descubrimientos y era un genio creativo. Las bellas artes fueron su primer amor y solía pensar que el arte es por la vida y no por el arte. Por lo tanto, inició un movimiento para propagar la importancia de las bellas artes en la vida del hombre y crear conciencia de ello en la sociedad. Animó a la gente común no solo a interesarse, sino también a cuidar los artefactos antiguos, incluso las imágenes rotas o los templos en ruinas, que constituyen una faceta importante de nuestra cultura. Como investigador, trabajó con una devoción resuelta, sin desanimarse por la falta de apoyo logístico o la presencia de animales salvajes en el entonces denso bosque, donde realizó innumerables exploraciones. Según sus propios escritos, su kit de herramientas principal consistía en empatía por la tribu y los aldeanos; llevando un equipaje que consistía en papas al horno (debido a esto, la gente local solía llamarlo Aaloo wale Baba: un anciano de papa), una botella de agua, brújula magnética y una caja de fósforos; además de un pesado palo de bambú. Era muy tranquilo y con los pies en la tierra, con amplias habilidades de comunicación y sentido común.

Su estudio fue muy sistemático. Para la datación comparó varias pinturas de diferentes lugares con los dibujos de cerámica y las inscripciones en los abrigos rocosos. Además, no solo se ocupó de las actividades humanas que podrían deducirse de estas pinturas, sino que también recopiló minuciosamente cientos de variedades de fauna y flora que existieron en el pasado remoto.

Los detalles minuciosos con los que estudió estas quilcas, la metodología que adoptó, y el enfoque



artístico hacia ellas, proporcionaron un ideal tanto para el artista como para los investigadores. En cierto modo, es absolutamente difícil inferir las actividades humanas a partir de las pinturas rupestres, pero el Dr. Wakankar lo hizo con éxito.

Según el Dr. Wakankar "...el arte viajó a través de varias fases del período prehistórico, como el Paleolítico, Mesolítico, Neolítico y así sucesivamente..." Mientras apreciaba las quilcas de Bhimbetka y de otros lugares, decía que la expresión lineal —de la que la India tiene una orgullosa herencia—, la forma y los trazos de las pinturas, son delicados y naturalistas. Apreció el movimiento, la fuerza en el contorno y el sentido de la composición que permanece siempre equilibrado y viva. Además, destacó cómo los artistas de Bhimbetka pasaron del naturalismo a formas en las que lo abstracto es dominante. Los investigadores anteriores, como el Sr. Cockburn, Gordon, etc., trataron de situar estas pinturas en el siglo VIII aEC., mientras que el Dr. Wakankar probó que pertenecen al Período Paleolítico. De hecho, el principal logro del Dr. Wakankar es su exitoso intento de datar estas quilcas, no obstante de que se trata de una datación relativa. Para ello ha tenido en cuenta análisis estilísticos, la superposición de las pinturas, las temáticas, los diseños; así como los artefactos de cerámica y piedra recuperados en las excavaciones de estos abrigos. Teniendo en cuenta el enorme y minucioso trabajo del Dr. Wakankar, podemos decir que tocó todos los aspectos del arte pictórico; y en su justa dimensión, el Dr. Yashodhar Mathpal lo llamó la enciclopedia viviente del arte rupestre indio (Mathpal 1984).

Estamos en gran deuda con los miembros de su familia, por su continuo interés en el trabajo del Dr. Wakankar; quien fue realmente una personalidad legendaria.

Agradecimientos

Nos gustaría agradecer a la señorita Kisa Shanker,

IGNCA por proporcionarnos las fotografías del Dr. Wakankar y al Dr. S. Krishnamurthy, epigrafista, ASI por su amable sugerencia en el artículo.

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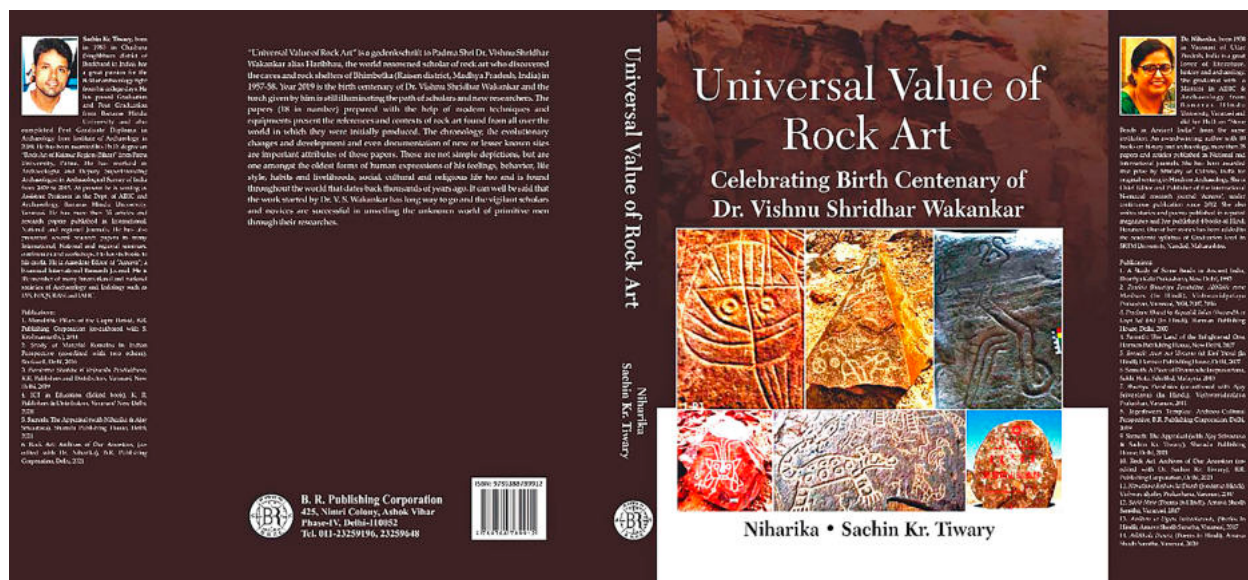


Figura 2. Cubierta del libro en homenaje al Dr. Vishnu Shridhar Wakankar



Arte rupestre peruano: análisis textométrico

RUBÉN URBIZAGÁSTEGUI-ALVARADO

Resumen: El objetivo de este artículo es aplicar las estadísticas textométricas a la literatura publicada sobre arte rupestre peruano, en un esfuerzo por descubrir la representación social del discurso académico explicitada en la literatura publicada sobre este asunto hasta diciembre de 2020. Se utilizó el software Iramuteq como herramienta para el análisis estadístico del corpus textual. Todas las contribuciones incluidas y organizadas en un solo corpus, fue sometido a 6 tipos de análisis: análisis de léxico clásico, clasificación jerárquica descendiente (CHD), análisis de especificidades de grupos, análisis factorial de correspondencias (AFC), análisis de similitudes y nubes de palabras. El análisis de léxico clásico identificó 216 segmentos de textos formados por 8620 ocurrencias de unidades lingüísticas y de las cuales 1857 son lemas, 1776 palabras de formas activas; de este total de palabras activas, 414 tuvieron una frecuencia de 3 o mayor a tres usos en los textos; 81 palabras fueron formas suplementarias y 1043 palabras tuvieron una única aparición (56.17% de las formas) conocidas como hápax. El análisis de correspondencias identificó que los dos ejes principales de la coordenada cartesiana explican el 71.65% de la inercia en la distribución de los términos en clases. El análisis de similitud identificó cuatro clases léxicas que se muestran en un dendrograma. Finalmente se creó una nube de palabras con aquellos términos más utilizados resaltados en una figura.

Palabras Clave: Textometría, Bibliometría, Cienciometría; Arte rupestre; Quilcas; Perú.

Abstract: The objective of this paper is to apply textometric statistics to the published literature on Peruvian rock art, in an effort to discover the social representation of academic discourse made explicit in the published literature on this subject until December 2020. The Iramuteq software was used as a tool for the statistical analysis of the textual corpus. All contributions included and organized in a single corpus, were subjected to 6 types of analysis: classical lexicon analysis, descending hierarchical classification (CHD), group specificity analysis, factorial correspondence analysis (CFA), similarity analysis and cloud of words. The classical lexicon analysis identified 216 text segments made up of 8620 occurrences of linguistic units, from which 1857 are lemmas, 1776 words of active forms; of this total of active words, 414 had a frequency of 3 or greater than three uses in the texts; 81 words were supplementary forms and 1043 words had a single occurrence (56.17% of the forms) known as hapax. The correspondence analysis identified that the two main axes of the Cartesian coordinate explain 71.65% of the inertia in the distribution of the terms in classes. Similarity analysis identified four lexical classes that are displayed on a dendrogram. Finally, a word cloud was created with the most used terms highlighted in the figure.

Keywords: Textometry; Bibliometrics, Scietometrics, Rock art; Quilcas; Peru.

Introducción

Se afirma que cuando Colón sugirió que la tierra era redonda, lo ridiculizaron porque se sabía que la tierra era plana y cuando Galileo sostenía que los planetas giraban alrededor del sol, estuvo a punto de ser condenado a muerte por hereje. En ambos casos, la realidad social no estaba representada adecuadamente por las concepciones científicas de la época y la sociedad se resistía a realizar cambios en sus representaciones sociales de lo que hasta esas épocas se conocía. Los conocimientos sobre estos asuntos estaban influenciados por las ideas mitológicas y religiosas preexistentes en esas sociedades. Una disciplina que se interesa por este tipo de relaciones, por el conocimiento que emerge del sentido común como la representación de un conjunto de ideas de la vida cotidiana, que se construyen a través de las relaciones entre los individuos y los grupos sociales es la psicología social. Este entendimiento se basa en la teoría de la representación social (TRS) que se desarrolla a partir de los trabajos de Serge Moscovici en Francia durante los años sesenta y setenta. La representación social sería un conjunto de conceptos y explicaciones que se originan en la vida diaria en el curso de las interrelaciones entre los individuos. Serían equivalentes a los mitos y sistemas de creencias de las sociedades tradicionales (Moscovici 1981: 181). Por lo tanto, el intercambio de informaciones serían los fenómenos sociales que permiten la identificación y

el trabajo de las representaciones sociales de manera concreta, pues las representaciones se elaboran a partir del sentido común y el conocimiento popular presentes en las sociedades (Moscovici 1984: 61). Estas se forman cuando las personas se reúnen para intercambiar ideas o cuando se exponen a los medios de comunicación; es decir, las representaciones sociales son fenómenos que tiene sus raíces en la forma como el ser humano construye su identidad. Son fenómenos específicos que están relacionados con un modo particular de comprensión y comunicación, un modo que crea tanto la realidad como el sentido común. Las representaciones sociales son formas específicas de comunicar y comprender lo que ya sabemos y “ocupan, en efecto, una posición curiosa, en algún lugar entre los conceptos, que tienen como objetivo abstraer el significado del mundo, e introducirle orden, y las percepciones, que reproducen el mundo de una manera significativa” (Moscovici 1984: 17). Son sistemas cognitivos con una lógica y enunciado propio como los estereotipos, creencias, afirmaciones o valores que ayudan a las personas a orientarse y dominar su medio social.

De esa manera, las representaciones sociales (RS) proporcionan a los individuos un sistema común para clasificar y definir aspectos desconocidos de su mundo social derivados de sus historias individuales, grupales y generadas por la ciencia y la tecnología (Codol, 1974). Una hipótesis fundamental de la teoría de la representación social es que las representaciones cognitivas se



construyen, seleccionan y se impregnan en los grupos a través de la interacción social y la comunicación. Se constituyen a través de las relaciones que identifican al sujeto como un ser que acumula conocimientos y experiencias de lo vivido, creando representaciones de la realidad e interiorizando las costumbres de la sociedad, pasados a través de las generaciones y compartidos por los grupos sociales. Las relaciones entre el universo cognitivo y la realidad social se fortalecen en el juego dialéctico que envuelve la constitución de las representaciones sociales a través de los saberes y experiencias provenientes de diferentes orígenes. De hecho, Moscovici (1988) sugiere que las RS pueden definirse como patrones de creencias, valores y comportamientos compartidos colectivamente que evolucionan continuamente a lo largo del tiempo y el espacio dentro de los grupos y entre los grupos. Las RS funcionan para organizar la información y proporcionar un lenguaje mediante el cual los individuos pueden comunicarse en su mundo social y dominarlo y sería una consecuencia de la difusión y circulación del conocimiento perteneciente a grupos que, cuando se comparte con otros, dan como resultado la aparición de creencias, valores y normas que influyen en el pensamiento y el comportamiento. Las representaciones sociales a menudo se originan en conceptos relacionados con la ciencia y la tecnología. Jasper y Fraser (1984) sugieren además que las RS constituyen una realidad social en la que muchos individuos comparten una representación que a su vez influye en el comportamiento individual y que permiten conocimientos coherentes moldeados por un proceso de intercambio e interacción. Funcionan para permitir la comunicación y, por lo tanto, pueden considerarse como redes de conocimiento.

También en Francia y durante la década de los setentas, ya se desarrollaba investigaciones en estadística textual. Guiraud (1954, 1960) y Muller (1968, 1977) llamaban a estas investigaciones de textometría que aplicaban a los textos lingüísticos los métodos de análisis desarrollados por Benzécri (1973) quien desarrolló una serie de métodos, que denominaba de análisis de datos y que se puede considerar como el precursor de la minería de datos y el “big data”. El acento en los métodos de visualización es clave para comprender el éxito de la Escuela de Benzécri. “Lo que era un conjunto complejo de datos se organizó como un “espacio” para el beneficio del analista, y de repente la nube de datos se volvió accesible para la interpretación en su conjunto, con una estructura que podía explorarse, descubrirse, comentarse y mostrarse” (Beaudouin 2016: 59). Esas técnicas permitían la generación de mapas visuales de las palabras que se relacionan entre sí en un corpus textual. La textometría aplicaba así una amplia gama de cálculos lingüísticamente significativos y basados en las matemáticas para un análisis metódico de las colecciones de textos: asociaciones sintagmáticas y paradigmáticas, contrastes, caracterizaciones y evoluciones (Pincemin, 2008).

La textometría se desarrolló como una disciplina que admite una forma diferente de “leer” los textos ya que permite el estudio cuantitativo no lineal de los corpus textuales, combinando la investigación lexicométrica y estadística. Los resultados del análisis textométrico brindan una descripción general sintética, selectiva y sugerente del texto reorganizado, visto ahora a través de listas jerárquicas, mapas visuales, reagrupaciones y mejoras del texto. Una nueva forma de acceder a los

datos textuales versátiles y controlados y una nueva forma de “leer” el texto a partir de los datos que antes no estaban disponibles (Jaćimović, 2019). Estos métodos cuantitativos que son aplicados en la textometría también se utilizan en el campo de la minería de textos (MT). La combinación de las representaciones sociales y la textometría están en la base de los diversos softwares que han desarrollado una interfaz gráfica que permiten el análisis de datos textuales utilizando las funciones primarias de la textometría, como la visualización de concordancias, frecuencia de uso de las palabras o el análisis de correspondencias factoriales.

En la década de los ochenta, inspirado por el análisis de datos, Reinert (1979) diseña la metodología de ALCESTE (*Analyse des Lexèmes Cooccurents dans les Énoncés Simples d'un Texte*). Las preocupaciones de Reinert tomaron una orientación particular que considera un corpus como una secuencia de declaraciones producidas por un sujeto-enunciador. Así, el texto se modela en una tabla que contiene declaraciones en filas, con la marca del sujeto-emisor, y las palabras o lexemas en columnas, que se refieren a objetos en el mundo (sin preconcepciones sobre la realidad de estos objetos). El objetivo es entonces sacar a relucir “mundos léxicos” (Beaudouin 2016: 18). Sin embargo, estas herramientas de estadística textual se desarrollaron con lenguajes de programación que se fueron convirtiendo en obsoletos y actualizarlos requería que los códigos se escribieran de nuevo. Por ejemplo, el software Alceste de Reinert (1979) fue totalmente reprogramado por Ratinaud (2009) y renombrado como “Iramuteq”, con una interfaz más moderna y con la capacidad de procesar mayores volúmenes de datos. Este software Iramuteq (2020) últimamente está siendo utilizado en una serie de estudios calificados de “cualitativos” y “exploratorios” y será usado también en esta investigación sobre arte rupestre peruano.

¿Porque estudiar a los profesionales de arte rupestre en el Perú? Motivado por el deseo de capturar las prácticas sociales tangibles y las interacciones que constituyen gran parte de las representaciones sociales del arte rupestre peruano, este artículo se centra en la comprensión basada en la práctica de los profesionales del arte rupestre peruano. El campo académico que lidia con el arte rupestre se construye socialmente en la sala de clases, las conferencias llevadas a cabo sobre este asunto y en las publicaciones difundidas por los especialistas. Un estudio de las representaciones sociales del arte rupestre que tienen estos profesionales, de los que forman parte estas prácticas cotidianas, se relaciona directamente con las vivencias reales de las personas cuyo contacto con los objetos rupestres lo define socialmente como especialistas en arte rupestre. Los profesionales del arte rupestre peruano (ARP) desempeñan un papel excepcional en la construcción cambiante de los sistemas de creencias de las comunidades de prácticas del arte rupestre. Ocupan una posición distintiva en la interacción entre el conocimiento experto y el conocimiento del novicio, sistemas de creencias cuyas suposiciones y agencias básicas pueden no corresponder necesariamente. Es a través de la práctica diaria de los profesionales que la investigación y las publicaciones que difunden se implementan, se integran en la realidad social y en los sistemas de creencias de la sociedad. Este artículo parte del supuesto de que las formas en que se organiza la información, la documentación y la forma en que se comunican a los interesados reflejan y constituyen la forma



en que estos problemas son representados socialmente. Por lo tanto, al estudiar lo que los profesionales del ARP creen y practican en relación con el “arte rupestre”, y luego publican, se puede obtener conocimientos sobre las formas de representación social concretizadas en el lenguaje usado en las publicaciones.

Actualmente no existe una metodología textométrica para estudiar el significado discursivo ni el análisis de la producción de textos académicos en arte rupestre; por esa razón el objetivo de este artículo es aplicar las estadísticas textométricas a la literatura publicada sobre arte rupestre peruano, en un esfuerzo por descubrir la representación social del discurso académico explicitada en la literatura publicada sobre este asunto en este campo. Se busca identificar patrones de coincidencias temáticas en la literatura académica publicada en este campo, respondiendo preguntas como ¿cuáles son las palabras y categorías gramaticales predominantes en esta literatura publicada? ¿es posible verificar una proximidad léxica en los documentos que conforman el corpus textual? ¿existe asociación léxica en los documentos que conforman el corpus de análisis?

Para lograr el objetivo propuesto, este artículo está organizado en seis partes. En la primera se presenta una introducción al tema, se detalla el problema y se formulan las preguntas de investigación. En la segunda se revisa la literatura publicada sobre este asunto. En la tercera se describe la metodología empleada con énfasis en la forma de recolección de los datos y la forma de medición de los datos. En la cuarta parte se exponen los resultados. En la quinta se proponen las conclusiones y discusiones de los resultados obtenidos. Por último, se presenta la bibliografía revisada para la elaboración de este documento.

Marco teórico y revisión de la literatura

Todavía no existen estudios en la arqueología, sociología o ciencias sociales en general que hayan estudiado la literatura publicada en esos asuntos usando el software Iramuteq. En el campo de la enfermería, Acauan, et. al (2020) evaluaron el uso del software Iramuteq como herramienta de apoyo al análisis de datos textuales y verificaron que este software es una buena herramienta auxiliar para la comprensión de lo que llaman investigación cualitativa ya que este software “permite la integración de métodos estadísticos con análisis cualitativo subjetivo con la ayuda de representaciones gráficas y relativamente simple de entender. Además, permite el uso de bases de datos de diferentes tamaños, fortaleciendo la importancia del investigador en todas las fases de la investigación, ya que requiere de conocimientos teóricos y experiencia significativos para el armado del corpus textual que será procesado” (Acauan, et. al, 2020: 4). Ya Arditi, et al (2020) aplicaron una encuesta transversal multicéntrica a pacientes que padecían de cáncer invitándolos a calificar su atención en los hospitales y a agregar comentarios de texto libre sobre sus experiencias relacionadas con esa enfermedad. Realizaron un análisis textual utilizando el software Iramuteq sobre los comentarios proporcionados por los encuestados e identificaron cinco clases temáticas principales, dos de las cuales consisten en una descripción detallada de las “camino para la atención del cáncer”. Las tres clases restantes estaban relacionadas con la “atención médica”, la “gratitud y elogio” y la forma en que vivían los pacientes con cáncer (“el cáncer y yo”).

Un análisis más detallado de esta última clase mostró que los comentarios de los pacientes estaban relacionados con los siguientes temas: “shock inicial”, “soledad”, “comprensión y aceptación”, “repercusiones del cáncer” e “información y comunicación”. Hoffmann, et. al (2020) buscan acercar un enfoque de las Humanidades Digitales, utilizando como datos la producción de conocimiento en la Historia de la educación matemática (HEM) en Brasil, en particular la producción de tesis y disertaciones en los años 2012 y 2017, utilizando como herramienta para el análisis de los datos, el software Iramuteq. Para el análisis elaboraron dos corpus textuales, uno referente a los resúmenes del año 2012 y otro al año 2017. Lamentablemente los resultados se limitan a ofrecer el número de textos analizados, el número de ocurrencias de las palabras, número de formas y número de hapax encontrados.

La transición de la denominada Bibliotecología basada en evidencias (EBL) a la Bibliotecología basada en narrativas (NBL), en línea con el “giro narrativo” que ocurre en las ciencias sociales y las humanidades, también se está produciendo en Italia. Partiendo del reconocimiento de que las encuestas del campo que utilizan métodos narrativos están aumentando en las bibliotecas públicas italianas, el artículo de Faggiolani e Galluzzi (2019) presenta la metodología y los primeros resultados de una meta-investigación construida sobre un corpus que abarca los datos textuales producidos mediante técnicas de investigación cualitativa. Aplicando un software para el análisis automático de textos (Iramuteq) y utilizando un enfoque tanto inductivo como deductivo, los autores analizan el léxico detrás de las narrativas de los usuarios, no usuarios, líderes de opinión y miembros del personal. El resultado es un mapa de preguntas y respuestas que saca a la luz patrones de investigación emergentes e impulsa consideraciones adicionales sobre el enfoque metodológico elegido. Ya Ferreira e Correa (2018) estudiaron el asunto “Biblioteca digital” en la literatura científica brasileña en Ciencias de la Información, analizando los términos presentes en los campos del título, resumen y palabras clave, de los trabajos publicados en artículos de revistas e indexados en la Base de datos de Periódicos em Ciência da Informação (BRAPCI) publicados en el Brasil, visualizando los términos utilizando el software Iramuteq. Según los autores, la propuesta metodológica implica el relevamiento y visualización de términos en forma de gráficos generados a partir del análisis de frecuencias (ley de Zipf) y co-ocurrencias de las palabras clave identificadas. Como resultado de la aplicación, el método permite la visualización de los temas que involucran el tema “Biblioteca digital” en la Ciencia de la Información brasileña en el período de 2001 a 2017.

Como se puede ver por la literatura revisada, todavía no existen investigaciones que hayan tomado a la literatura diseminada en el campo del arte rupestre, o a la arqueología o a algunos campos de las ciencias sociales como objeto de análisis utilizando el paquete estadístico Iramuteq. Entonces, es pues propicio el momento para un análisis de este tipo en la literatura publicada sobre arte rupestre en el Perú.

Metodología

Este trabajo analiza la literatura producida sobre arte rupestre en el Perú, por lo tanto, como unidades de



análisis fueron tomados cada uno de los libros, capítulos de libros, artículos, trabajos presentados en congresos y otras formas de comunicación escritas publicadas sobre este asunto desde que se tuvieron las primeras noticias sobre su existencia hasta diciembre de 2020. Para recolectar los documentos publicados sobre este asunto se hicieron búsquedas con múltiples combinaciones booleanas usando las palabras claves listadas en el Anexo A, en las bases de datos bibliográficas listadas en el Anexo B. Por ejemplo, combinaciones booleanas con las palabras clave: Arte rupestre AND Perú; Geoglifos AND Perú; etc. En las búsquedas se utilizaron preferentemente los idiomas español e inglés. También se hicieron búsquedas en repositorios de acceso abierto, así como en los catálogos disponibles en internet para consulta online de las bibliotecas y sitios listadas en el Anexo C. Las referencias bibliográficas que se encontraron se exportaron a una base de datos bibliográfica diseñada en EndNote (Versión X8). Cada documento que se encontró se leyó y revisó cuidadosamente para verificar que tratara sobre el asunto de esta investigación. Se revisaron las referencias bibliográficas listadas en cada documento para identificar los trabajos referenciados en esos documentos pertinentes al asunto “arte rupestre en el Perú” pero que no se encontraron en las búsquedas realizadas en las bases de datos. Se normalizaron los nombres de los autores, las palabras clave, los títulos de las revistas, y los nombres de los congresos, mesas redondas y eventos similares, con el fin de eliminar las referencias bibliográficas duplicadas. Solo se retuvieron documentos únicos y no duplicados.

En el proceso de búsqueda se encontraron también bibliografías levantadas sobre el arte rupestre peruano y sudamericano. Esas bibliografías fueron cuidadosamente analizadas y las referencias pertinentes ingresadas en la base de datos creada en Endnote (Versión X8). Esos aportes proceden de las bibliográficas elaboradas por Monteverde Sotil (2008); Narváez Luna (s.d.); Guffroy (1999), Marymor (2020), Hostnig (2021), y otros.

Con esta revisión y selección minuciosa se produjo una base de datos bibliográfica especializada sobre arte rupestre en el Perú totalizando 1815 referencias bibliográficas únicas y no repetidas conteniendo libros, capítulos de libros, artículos de revistas, comunicaciones presentadas en congresos, y tesis producidos por diferentes autores hasta diciembre del 2020. De estos textos se seleccionaron solo 1 texto de cada año para con este texto hacer la prueba del análisis de textos con el paquete tm (Feinerer & Hornik, 2020) de R que es simplemente un entorno computacional que puede realizar cálculos numéricos, procesamiento de cadenas con caracteres y mucho más. Para seleccionar cada texto se usó la estrategia de muestra randómica aleatoria sin reemplazos, pero usando los algoritmos pertinentes de R (R Core Team, 2017). Este algoritmo enumera los documentos de 1 a n. Por ejemplo, si en un determinado año se publicaron 50 documentos, el algoritmo enumera los documentos de 1 a 50; luego de estos 50 documentos, se le solicita a R que genere 1 número aleatorio. Digamos que R genera como número aleatorio el 33, entonces el documento 33 es aleatoriamente seleccionado como muestra. De cada uno de estos documentos seleccionados aleatoriamente se copiaron los resúmenes y se llevaron a Notepad. Para guardar cada resumen se usó el apellido y en ciertos casos abreviando el apellido del autor seguido del año de publicación del documento. Cada documento se guardó en el formato xx.csv, por ejemplo: Azevedo-2020.

csv.

El uso de recursos informáticos y estadísticos en el análisis de textos ayuda a potencializar el alcance de las investigaciones. Aunque el software es solo una herramienta que auxilia en el análisis, la familiaridad del investigador con el asunto es esencial. El uso de softwares de análisis lexical permite el análisis de bases de datos complejas, proporcionando más detalles para explorar, describir y comparar los datos. Por esa razón se utiliza el software Iramuteq (Interface for R for Les Multidimensional Analyzes de Textes et Questionnaires, 2020) como herramienta para el análisis estadístico del corpus textual. Se eligió este software porque es una herramienta de acceso libre y gratuito que permite varios tipos de análisis estadísticos. Cuando se propone la utilización de softwares es con el objetivo de facilitar y volver más eficiente el proceso de tratamiento de los datos. Tratando los datos de un corpus textual de manera estadística, su potencialidad para el análisis de datos está ligado a que no requiere del investigador un conocimiento específico de la estadística ni siquiera un lenguaje de programación informática. La creación de representaciones gráficas mediante el tratamiento de los datos permite al investigador un análisis e interpretación más precisos atenuando la pérdida de información.

Todas las contribuciones fueron incluidas y organizadas en un solo corpus, el cual fue sometido a 5 tipos de análisis: análisis de léxico clásico, clasificación jerárquica descendiente (CHD), análisis de especificidades de grupos, análisis factorial de correspondencias (AFC), análisis de similitudes y finalmente se trazó una nube de palabras.

Resultados

El aprendizaje de las ciencias puede verse como el desarrollo de un repertorio de prácticas discursivas con las que se participa en la adquisición de conocimiento en las prácticas cotidianas de los grupos sociales. Para que este aprendizaje se afiance el lenguaje y la comunicación son elementos esenciales. Los grupos sociales pueden representar compañeros de clases, disciplinas científicas profesionales u organizaciones ciudadanas. A través de la participación y la comunicación, los participantes transforman estas comunidades y transforman el conocimiento. La importancia de la comunicación para el aprendizaje de las ciencias se puede entender de varias maneras. La enseñanza y el aprendizaje se construyen a través del lenguaje y los procesos sociales. A través de los procesos del discurso, las comunidades construyen colectivamente normas y expectativas, definen y legitiman el conocimiento, construyen afiliaciones y posicionan a los participantes a través de la interacción social. El acceso de los aprendices se logra mediante la participación de estos en los espacios sociales y simbólicos de las comunidades especializadas. Aprender a hacer ciencia consiste en convertirse en miembro de una comunidad discursiva especializada y, por lo tanto, comprender cómo emplear el conocimiento y como usarla en la práctica. Participar en un conjunto de prácticas discursivas implica no solo el uso del lenguaje, sino también un conjunto de valores, creencias, actitudes y formas de estar en el mundo. El significado se construye socialmente a través del lenguaje; los iniciantes aprenden a usar y comprender términos científicos. La ciencia es conocimiento social y el aprendizaje implica comprender los significados reconocidos por las comunidades epistémicas. Por



lo tanto, el conocimiento disciplinario se construye, enmarca, comunica y evalúa a través de las prácticas discursivas. En el campo del arte rupestre en el Perú, estas prácticas discursivas se manifiestan como “uno de los aspectos que caracteriza y define el mundo académico es la construcción de comunidades científicas cuyos miembros propician la producción y la circulación del conocimiento, debemos reconocer el papel fundamental de la formación escolar y del lenguaje en tal proceso. Es por ello que este universo de saberes se conforma y transforma a través de la ciencia y la alfabetización disciplinar y, de igual manera, por medio de la creación y el uso de estrategias discursivas particulares” (Londoño Zapata, 2015, p. 335) como aquellas difundidas a través de las publicaciones académicas.

La función del análisis textométrico es develar la constitución lingüística y discursiva de esta comunidad académica, utilizando el corpus textual compuesto de una muestra de 42 resúmenes de la literatura publicada sobre arte rupestre peruano por miembros de esta comunidad. En estos 42 resúmenes se encontraron 216 segmentos de texto (con una media de 39.9 segmentos por texto) que están formados por 8620 ocurrencias de unidades lingüísticas y de las cuales 1857 son lemas y 1776 palabras de formas activas (verbos, adjetivos, adverbios, sustantivos); de este total de palabras activas, 414 tuvieron una frecuencia de 3 o mayor a tres usos en los textos; 81 palabras fueron formas suplementarias (artículos, proposiciones, conjunciones, etc.) y del total de palabras 1043 tuvieron una única aparición (56.17% de las formas) conocidas como hápax. Las palabras con formas activas con el mayor número de frecuencias (mayor a 10) se presentan en la Tabla 1. Estas cifras son auto explicativas; sin embargo, se pueden ejecutar una serie de combinaciones para darles sentido; por ejemplo: Sitio rupestre; sitio con geoglifos; Sitio arqueológico; sitio con

petroglifos, y muchas otras.

Después de la reducción del vocabulario a sus raíces, el 85% de las unidades de contextos elementales (u.c.e.) fueron retenidas en el corpus (122), que se distribuyeron en dos subgrupos, separando la clase 4 de las demás clases. Luego, se subdividió este segundo subcorpus, originando la clase 2 en oposición a las clases 1 y 3. La función semántica expresada en cada división se aleja después de cada subdivisión al “descender” en el árbol de jerarquía de las palabras representadas en cada una de las clases identificadas en el corpus. Los textos (corpus) fueron segmentados y clasificados en cuatro clases temáticas que se proporcionan en un dendrograma que muestra la agrupación jerárquica de las clases, los detalles de las clases con las palabras típicas y los extractos léxicos. Para facilitar el análisis de similitud, el análisis léxico usa la clasificación jerárquica descendente (Reinert, 1983, 1990) que identificó cuatro clases léxicas que se muestran en el dendrograma de la Figura 1.

La clasificación jerárquica descendente (Método de Reinert) realiza subdivisiones del corpus hasta lograr clases específicas de contenido léxico que conforman las unidades de contexto elementales (u.c.e.). En el análisis se consideraron palabras con frecuencia igual o mayor a la media de 3 y con chi-cuadrado x2 mayor a 3.84 (g.l. = 1, $p \geq 0.05$). En efecto, las clases que componen el dendrograma están compuestas por las palabras más significativas o frecuentes y sus correspondientes asociaciones con cada clase (chi-cuadrado). En el dendrograma (Tabla 2) se presenta cada clase indicando el número de u.c.e., nombres, atributos y variables relacionados, además de las palabras que las componen indicando además los valores de chi-cuadrado correspondientes.

Este dendrograma muestra dos grandes registros léxicos que se subdividen en, por un lado, la clase 4, y por el otro lado, las clases 1, 3 y la clase 2 (Ver Figura 1). La

Tabla 1. Palabras con frecuencias mayores a 10

Palabras	Frecuencia	Palabras	Frecuencia	Palabras	Frecuencia
sitio	48	realizar	17	imágenes	11
rupestre	47	articular	16	palpa	11
geoglifo	34	evidenciar	16	peruano	11
arqueológico	33	linear	16	presente	11
arte	31	Nasca	16	camélidos	10
petroglifo	31	trabajo	16	carácter	10
valle	30	desarrollo	15	características	10
parte	29	medio	15	cerro	10
investigación	28	paisaje	15	complejo	10
cultural	26	grabar	14	conjunto	10
grande	26	primero	14	cuenca	10
rio	24	asociar	13	dato	10
encontrar	21	estilo	13	departamento	10
estudio	20	grupo	13	distrito	10
perú	19	provincia	13	espacio	10
ubicar	19	quebrar	13	hacer	10
alto	18	tiempo	13	proceso	10
andino	18	año	12	registro	10
periodo	18	lugar	12	relación	10
presentar	18	motivo	12	representación	10
roca	18	sociedad	12	resultado	10
dos	17	zona	12	proyecto	10

Elaborado por el autor

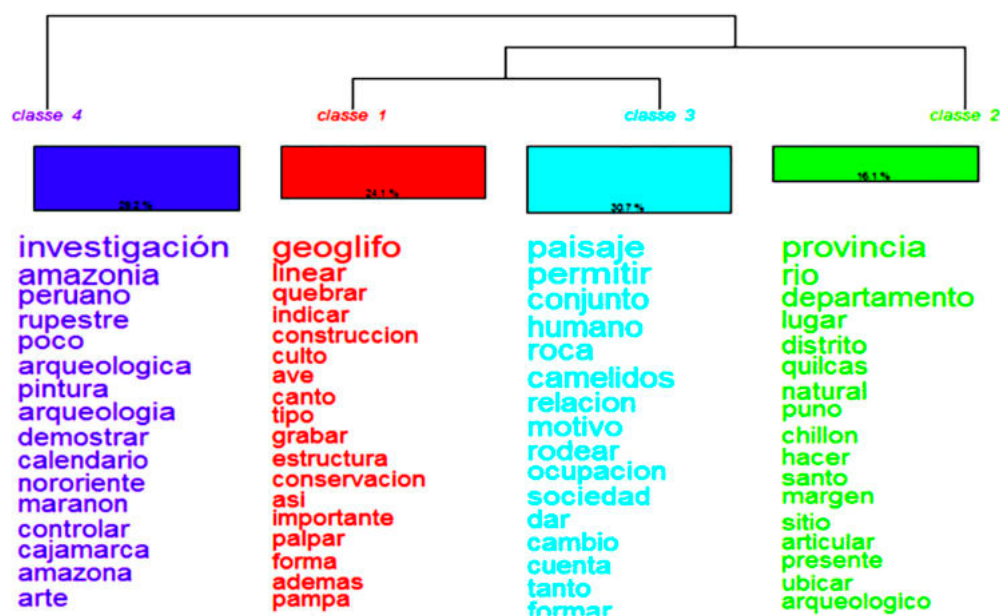


Figura 1. Dendrograma de las clases léxicas.

clasificación jerárquica descendente empleada permite identificar conjuntos de palabras cuya independencia se caracteriza por formas específicas correlacionadas entre sí. Construidas sobre la distribución de las principales palabras del léxico, las clases léxicas identificadas permiten, describir los “mundos léxicos” o universos del discurso. Estos “mundos léxicos”, como los caracteriza Reinert (2007: 195-196), serían producto de los diferentes “ambientes mentales” invertidos por los profesionales del arte rupestre peruano. La primera categoría, que incluye solo a la clase 4, representa el 29.2% de los segmentos léxicos que se refieren a las investigaciones sobre arte rupestre peruano en la Amazonía y en el nororiente peruano, así como en las regiones aledañas a la Amazonía como, por ejemplo, el Departamento de Cajamarca. Ya la clase 2 (16.1%) se refiere a un léxico tomado de las exploraciones rupestres siguiendo los ríos en los departamentos de Puno y Lima respectivamente. Las categorías léxicas que reúnen las clases 1 (24.1% de los segmentos de textos) y la clase 3 (30.7% de los segmentos de textos), enfrenta a dos clases, una de las cuales postula el análisis de los geoglifos como indicación de la construcción de cultos, y la necesidad de grabar y conservar esas estructuras; mientras la otra (clase 3), invoca al paisaje como la posibilidad de permitir el análisis de un conjunto humano en la ocupación de esos espacios arqueológicos.

La Tabla 2 muestra la robustez de estas categorizaciones según la indicación del chi-cuadrado. Por cuestiones de espacio solo se muestran las 20 primeras palabras o categorías léxicas.

Obsérvese que Iramuteq no es muy eficiente al construir los segmentos textuales para análisis pues no reconoce algunas categorías gramaticales como la conjunción “así” y el adverbio “además”. También la lematización de la ciudad de Palpa es reconvertida al verbo “palpar”. Sin embargo, es bueno reconocer que a pesar de estas pequeñas deficiencias la segmentación opera adecuadamente.

Para explorar las cuatro clases léxicas del arte rupestre

peruano y representarla gráficamente, se utilizó el análisis de correspondencia múltiple (ACM) que toma como entrada las tablas que contienen variables categóricas nominales, estima las distancias entre las variables y luego transpone esas distancias a una gráfica bidimensional. Cada fila y cada columna de la tabla se representa, así como un punto en un espacio euclidiano. Si todos las clases léxicas tuvieran el mismo perfil, se agruparían en el centro del trazado, donde se cruzan los ejes horizontal y vertical. Este no es el caso, como lo demuestra la cantidad de palabras que se distribuyen por el trazado. Muchos de los términos se agrupan en la esquina superior derecha del trazado, mientras que otros términos se agrupan en la esquina inferior derecha (Ver Figura 2).

El análisis de correspondencia factorial, a partir de cálculos de la inercia de las palabras del corpus, resalta los paralelos y oposiciones entre las formas y donde se plasman las distintas clases obtenidas y su interdependencia, en un plano cartesiano. Luego, la pertenencia a una clase las superpone en una distribución determinada por los factores propios de la matriz de inercia informada en los dos ejes. Es decir, el análisis factorial de correspondencias léxicas asigna a cada uno de los “términos” del corpus una coordenada y en base a los valores obtenidos al calcular la distancia entre cada uno de los “términos” del corpus, los coloca en un espacio bidimensional. La nube de palabras así creada revela las repulsiones y atracciones de los conjuntos léxicos del corpus. En el espacio de representación, las áreas alrededor de las cuales giran las formas, así como las líneas normativas ascendentes de los ejes, se intenta identificar si la distribución de las formas léxicas están articuladas por un eje vertical que representa un continuo polarizado entre la problematización de los temas. El eje horizontal que permite discernir una división entre, por un lado, axiologías y repertorios argumentativos, y por otro, actores, dispositivos o eventos. Debido a que el análisis de correspondencias visualiza las relaciones entre los elementos que componen los datos como distancias en un gráfico, a menudo se pueden descubrir patrones basados



Tabla 2. Las cuatro clases léxicas del arte rupestre peruano

Clase 1 (24.15%) 33 u.c.e.	x ²	Clase 2 (16.1%) 22 u.c.e.	x ²	Clase 3 (30.7%) 42 u.c.e.	x ²	Clase 4 (29.2%) 40 u.c.e.	x ²
geoglifo	51.51	provincia	50.35	paisaje	14.73	investigación	26.16
linear	29.21	rio	36.3	permitir	14.19	amazonia	20.6
quebrar	12.44	departamento	32.72	conjunto	11.74	peruano	17.89
indicar	9.67	lugar	23.29	humano	11.74	rupestre	14.52
construcción	9.67	distrito	21.9	roca	10.52	poco	13.97
culto	9.67	quilcas	21.54	camélidos	10.52	arqueológica	13.45
ave	9.67	natural	21.07	relación	10.06	pintura	12.58
canto	9.67	puno	16.03	motivo	9.32	arqueología	12.58
tipo	9.04	chillón	16.03	rodear	9.32	demostrar	9.99
grabar	8.87	hacer	15.74	ocupación	8.19	calendario	9.99
estructura	8.87	santo	15.74	sociedad	7.85	nororient	9.99
conservación	8.87	margen	15.74	dar	6.94	marañón	9.99
así	8.87	sitio	13.06	cambio	6.94	controlar	9.99
importante	8.87	articular	9.24	cuenta	6.94	cajamarca	9.99
palpar	7.61	presente	9.22	tanto	6.94	amazona	9.99
forma	6.86	ubicar	9.08	formar	5.94	arte	9.72
además	6.22	arqueológico	7.67	existir	5.94	contexto	8.9
pampa	6.22	izquierda	7.43	través	5.77	constituir	8.9
serie	6.22	producción	5.83	cultural	4.74	andino	8.69
figura	5.84	norte	5.83	diferente	4.05	lograr	7.44

Elaborado por el autor

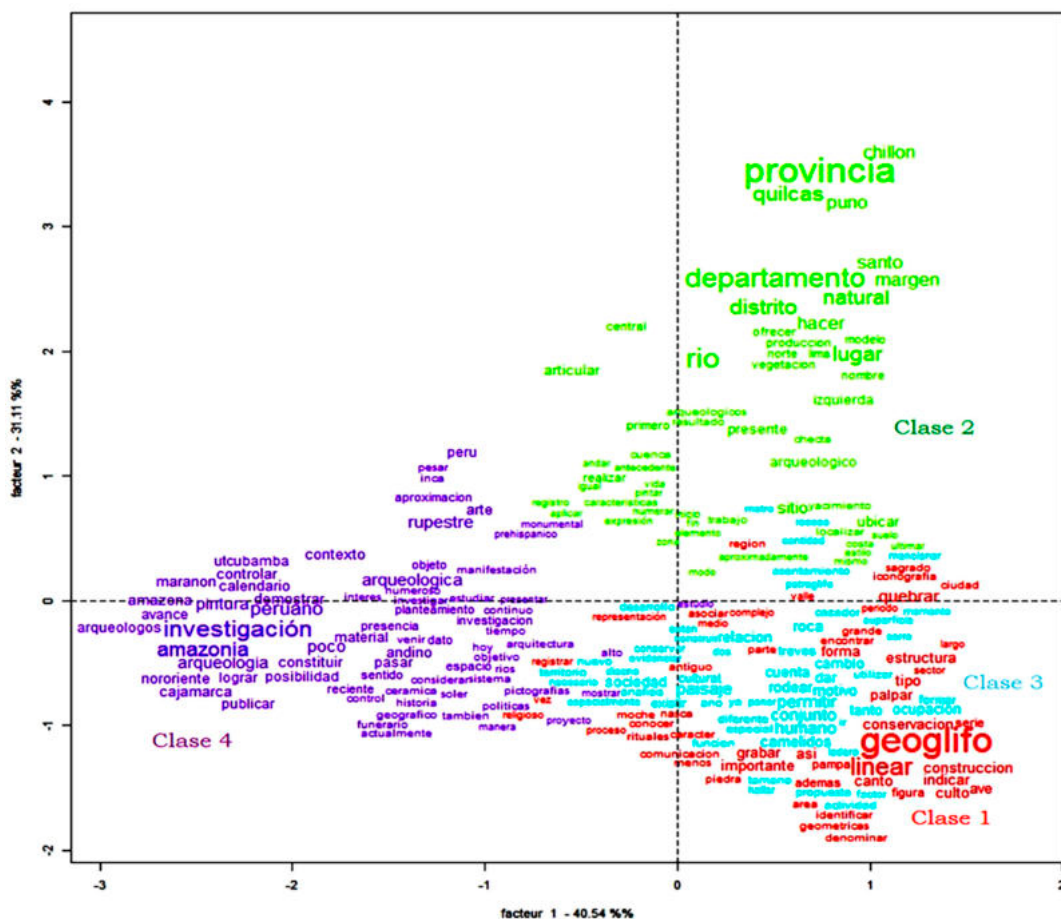


Figura 2. Distribución de los términos y las clases.



en qué elementos de una categoría aparecen cerca de los elementos de la otra. Por lo tanto, el análisis de correspondencias sirve para filtrar los patrones principales de un gran conjunto de datos. Por ejemplo, los dos ejes de esta coordenada explican el 71.65% de la inercia en la distribución de los términos en clases. Claramente la Clase 1 está mucho más cerca de la Clase 3, con la que comparten muchos términos cercanos. Por lo tanto, los asuntos estudiados por los autores que estarían presentes en estas dos clases parecen estar estudiando los mismos asuntos y las mismas regiones. Sin embargo, estas dos clases comparten también algunas preocupaciones con los asuntos estudiados por la clase 2, por eso se posicionan en el mismo eje vertical con valores positivos de la coordenada. Ya los asuntos de la clase 4 tienen sus propias características e intereses y por eso se posicionan próximo al eje central, pero con valores positivos y negativos (Ver Figura 2).

La Figura 3 muestra a los autores de los textos y las clases en las cuales fueron categorizados. Los autores de las clases 1 y 3 están localizados muy próximos en la coordenada cartesiana significando que probablemente están abordando los mismos asuntos y por eso están muy próximos unos de los otros. Estas dos clases también están próximas de los autores clasificados como pertenecientes a la clase 2. Sin embargo, en esta clase dos se nota una polarización en dos subgrupos de autores. Ya los autores de la clase 4 son más homogéneos y no están polarizados. En esta etapa del análisis, se busca comprender en qué

se diferencia cada clase en relación con el campo común de las representaciones sociales. El software Iramuteq proporciona un gráfico de las clases en forma de árbol resultante del análisis de semejanza y aproximación entre palabras. El punto de partida del análisis de similitud es una matriz construida sobre las formas plenas del corpus basada en la idea de la relación proporcional a la frecuencia, pero introduce las relaciones de coocurrencia entre las formas en los segmentos del texto y permite describir clases léxicas, perfiles de especificidad o incluso cuerpos completos (Marchand y Ratinaud, 2012).

El objetivo de este método es el de estudiar la proximidad y las relaciones entre las formas que integran el corpus, representándolo de una manera arbórea. Cuanto más grueso es el borde, más fuerte será el vínculo entre estas las palabras. El lugar que ocupan las palabras entre sí también es importante, al igual que los enlaces representados. El interés está centrado en restaurar la parte común, representando las relaciones entre las formas léxicas en un corpus no dividido por variables exógenas, pero solo en unidades contextuales (Marchand y Ratinaud, 2012). Este es el árbol más simple que se puede obtener, pero también el más pesado en términos de información que permite leer las relaciones lexicales más fuertes entre las formas y las más frecuentes de un corpus.

El análisis de similitudes muestra un grafo que representa las ligaciones entre las palabras del corpus textual a partir de los cuales se pueden inferir la estructura del corpus, así como identificar los temas

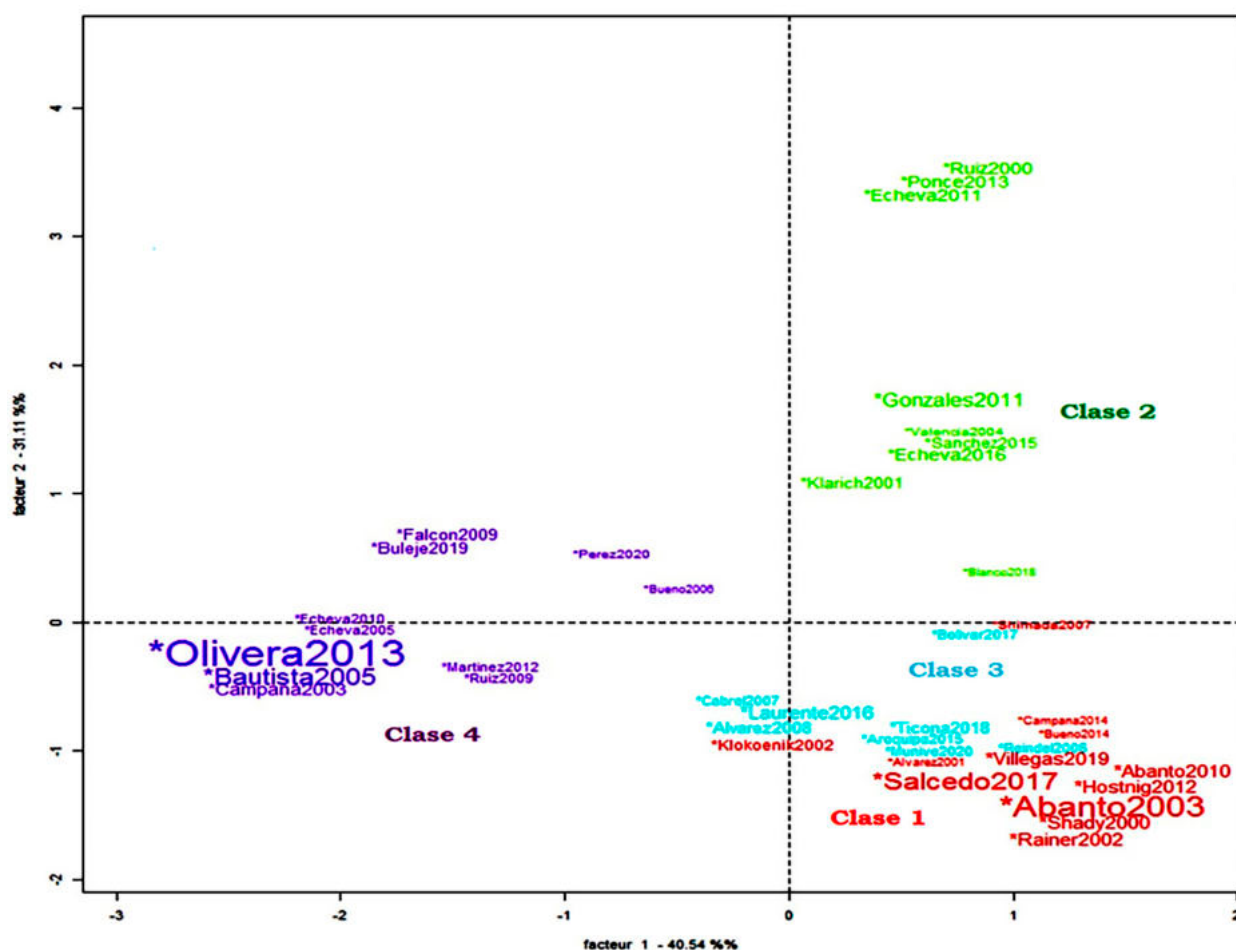


Figura 3. Distribución de los autores según las clases.

de relativa importancia en este corpus. El análisis de similitudes permitió identificar dentro del corpus núcleos semánticos y un medio gráfico para identificar la relación de fuerza y coocurrencia a modo de árbol máximo. Por ejemplo, en la Figura 4 se puede observar que las palabras “rupestre” y “arte” aparecen de forma destacada (a mayor tamaño mayor frecuencia). Igualmente, ambas palabras se relacionan con la palabra “sitio”. Pero también se pueden identificar las palabras que aparecen en oposición y muy alejadas de esta distribución de similitud y los enlaces de coocurrencia (a mayor grosor de enlace mayor coocurrencia entre las palabras). Vemos, por ejemplo, en la parte superior central las palabras “espacio” y “tiempo”, “periodo” y “desarrollo” como opuestos a “evidenciar” pero enlazados por la palabra “Perú”. Se observa que los datos obtenidos de este análisis son similares a los análisis previos. El corpus se agrupa en torno a la palabra “sitio”, la cual, junto a las palabras “rupestre” y “arte”, aparecen en letra más grande debido a su alta frecuencia, además, presentan una alta coocurrencia entre ellas. Otras palabras que se deben mencionar, aunque su frecuencia no sea tan alta, son “geoglifo” (la cual aparece relacionada con “grande” y “parte”) y “rio” (apareciendo ligado a “cuenca” y

“quebrada”). Se está analizando los sentidos del lenguaje y los intereses sociales que los fundamentan ya que el lenguaje casi nunca es transparente.

Finalmente, es oportuno presentar una síntesis gráfica de las relaciones evidenciadas en el corpus con base en el análisis de similitud. En este análisis, que se representa en la Figura 5, es posible observar las palabras distribuidas en la forma de un árbol en el que los diferentes términos en las ramas (resaltado) las palabras derivan de un núcleo común (Rupestre y Arte), que brinda una imagen síntesis del rol de esta disciplina en la formación de los científicos sociales, especialmente la arqueología peruana.

El sitio rupestre concentra tres áreas de estudio. Por un lado, los geoglifos, asociados a la exploración del Río Grande en Nasca y Palpa. Estas exploraciones se asocian a los estudios de petroglifos en el valle medio y a la parte altoandina. Por otro lado, el ubicar y encontrar sitios arqueológicos en los departamentos, provincias y distritos del Perú. También tres grupos que giran en torno del asunto “rupestre”: como datos complejos de representación del grabado en rocas, ligados al arte cultural, definidos por sus relaciones con la sociedad, como carácter grupal de la región peruana. Esta se liga a la investigación arqueológica peruana para evidenciar

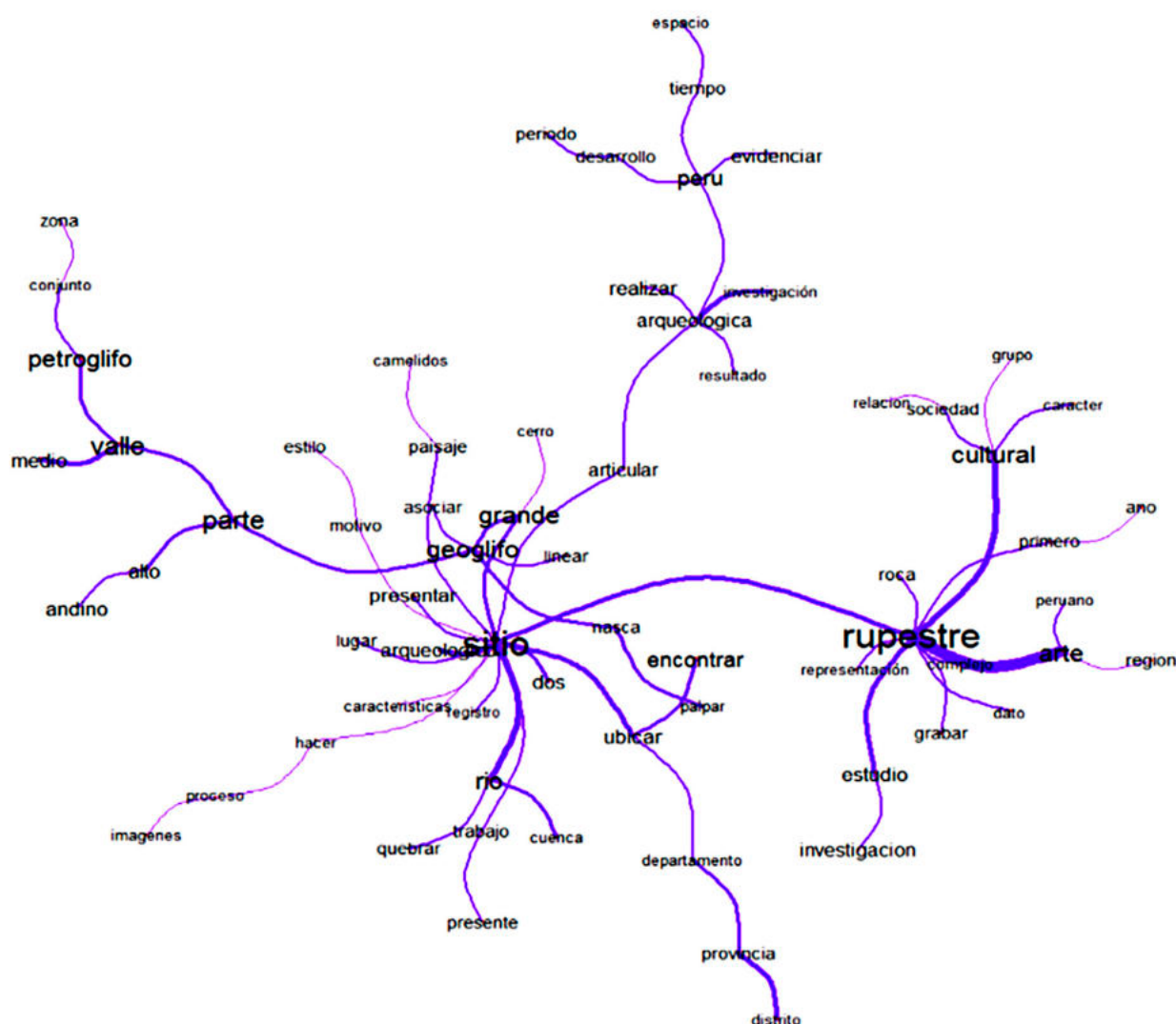


Figura 4. Grafo de similitud del corpus textual.

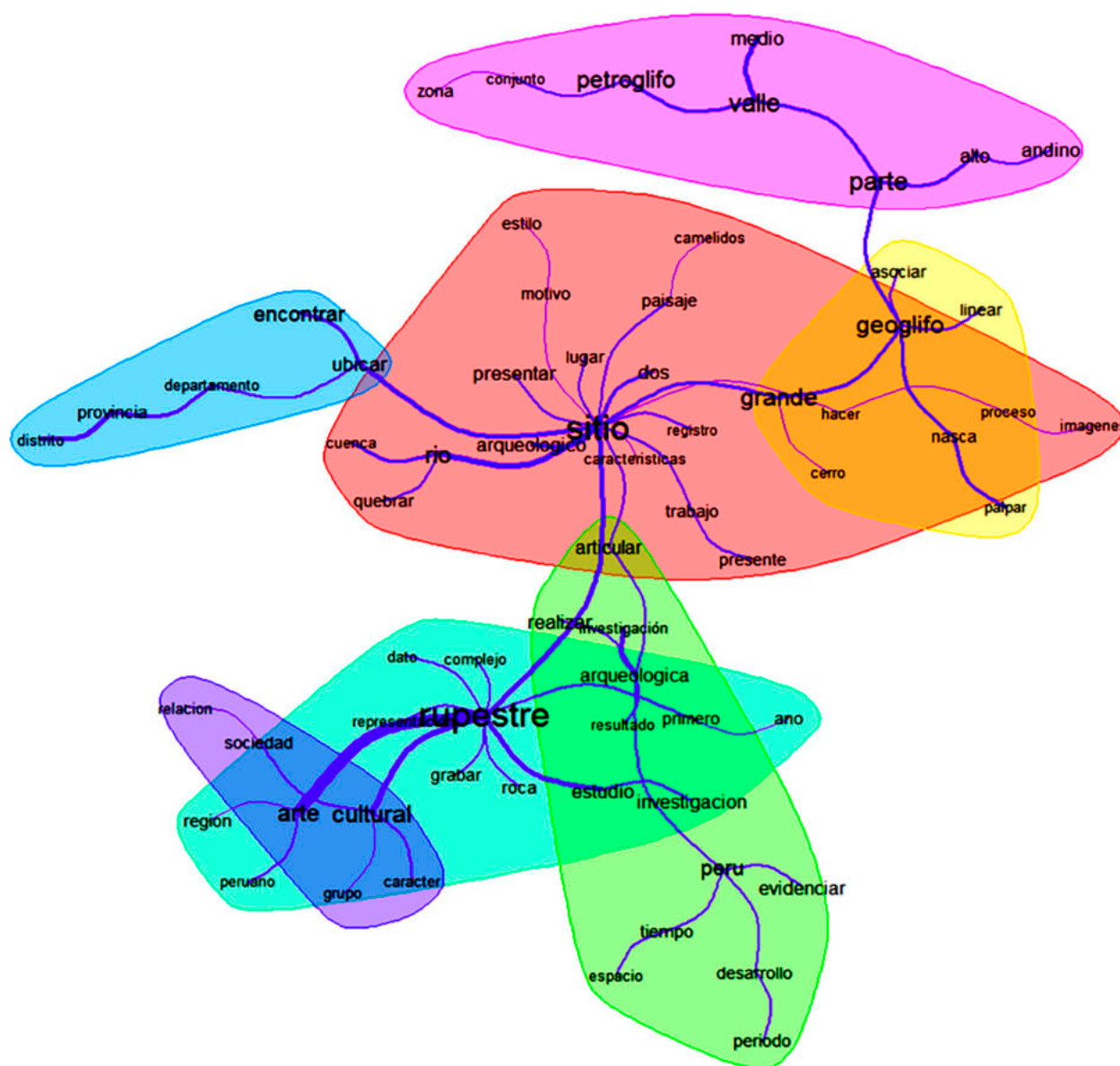


Figura 5. Grafo de similitud del corpus textual con agrupamientos.

el tiempo y espacio del periodo de desarrollo.

La Figura 6, muestra la nube de palabras formadas a partir del corpus. Su representación consiste en el cálculo de la frecuencia de ocurrencias de las palabras y donde aparecen las palabras con mayor representatividad con el tipo de letras en tamaño mayor y las menos representativas en un tamaño menor. Por ejemplo, “sitio” y “rupestre”, aparecen con mayor tamaño por que tuvieron mayor frecuencia de apareamiento en los textos analizados. Igualmente “geoglifo” y “petroglifo” aparecen en destaque por la misma razón, y así sucesivamente las palabras que componen el mundo léxico de las preocupaciones de los investigadores en arte rupestre en el Perú. Básicamente, estas son las mismas que ya se analizaron anteriormente.

Conclusión

Este artículo tuvo como objetivo verificar el conocimiento desarrollado y transmitido por los medios

de difusión académicos (libros, revistas, congresos, etc.), sobre arte rupestre en el Perú. Si bien la comunidad científica es considerada como un grupo social peculiar de producción de conocimiento, este universo es producido por especialistas, teniendo en cuenta el rigor y los métodos propios de la ciencia, que no pueden equipararse a la dinámica presente en el proceso de formación de representaciones sociales del sentido común. Identificar la cosmovisión y los conocimientos construidos y compartidos que orientan las prácticas socioculturales de los científicos sociales revela una nueva dinámica de interacción social que se superpone a las características objetivas de la información, dilucidando parte de los conceptos sobre los que se articulan las representaciones sociales y exponen los elementos consistentes que explican las estrategias de confrontamiento que utilizan los científicos que lidian con el arte rupestre en el Perú. “El objetivo del método propuesto es el de poner en evidencia, a través del análisis de un conjunto de textos, los ‘mundos lexicales usuales’ evocados por los enunciadores. La estadística



relacionadas con un patrón hegemónico de un discurso oficial y oficializado del discurso académico. Por lo tanto, contribuyen también a su reproducción y perseverancia.

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Anexo A: Palabras claves usadas en las búsquedas

Arte rupestre AND Perú
 Geoglifos AND Perú
 Arte en las rocas AND Perú
 Pictógrafos AND Perú
 Petroglifos AND Perú
 Quilcas AND Perú
 Sitios de arte rupestre AND Perú
 Formas precolombinas AND Perú
 Manifestaciones rupestres AND Perú
 Arte primitivo AND Perú
 Rock art AND Perú
 Art on the rocks AND Perú
 Pictorials AND Perú
 Petroglyphs AND Perú
 Rock art sites AND Perú
 Pre-Columbian forms AND Perú
 Cave Manifestations AND Perú
 Primitive art AND Perú
 Otras

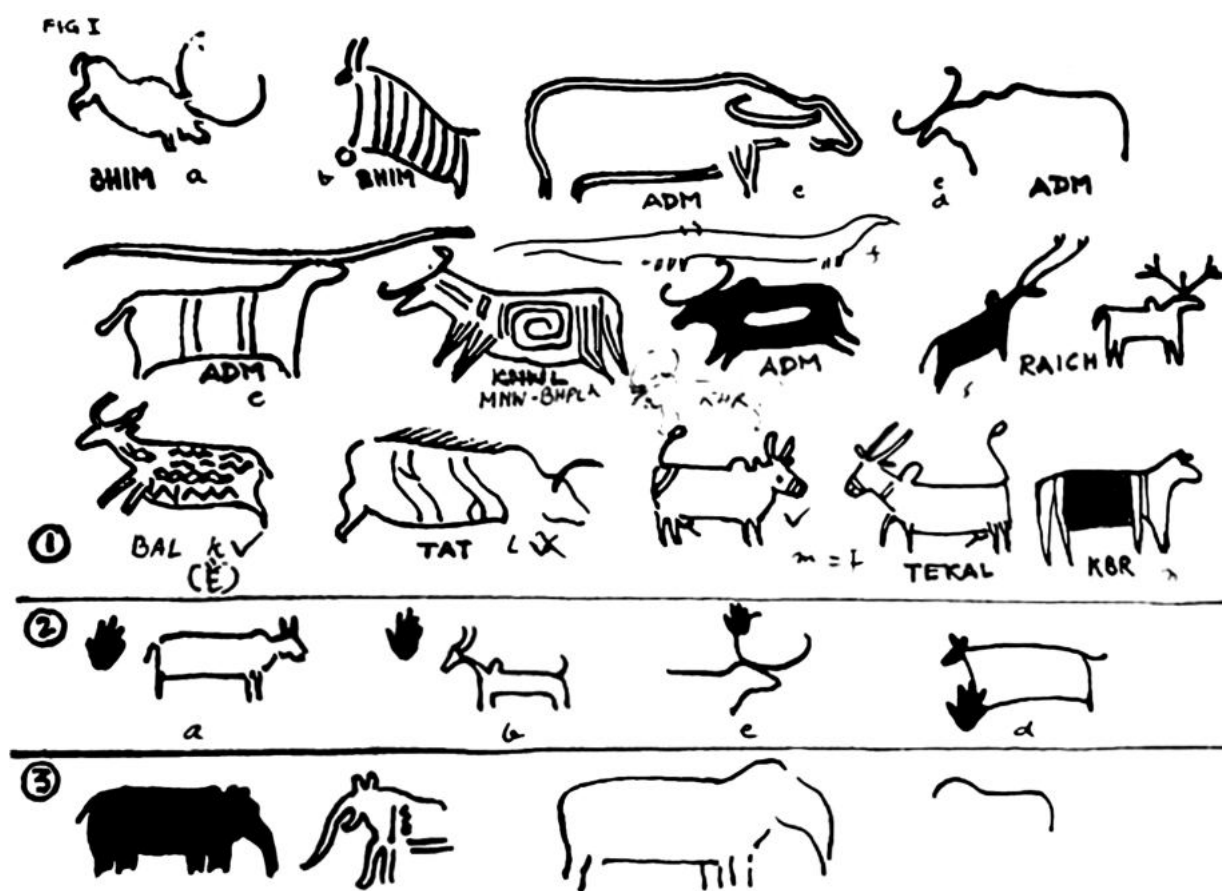
Anexo B: Bases de Datos Bibliográficas

Academic Search Complete
 Anthropology Online
 Anthropology Plus
 AnthroSource

Archaeological Bibliography (Archäologische Bibliographie)
 ArticleFirst
 Arts and Humanities Citation Index (Web of Science)
 Google Scholar
 Handbook of Latin American Studies
 HAPI (Hispanic American Periodical Index)
 JSTOR: The Scholarly Journal Archive
 Latin America Data Base
 Melvyl Catalog
 Social Sciences Citation Index (Web of Science)
 Scopus
 Web of Science
 WorldCat
 Scielo-Peru
 Redalyc
 Otros

Anexo C: Repositorios y Catálogos online

Biblioteca Nacional del Peru
 Biblioteca Central de la Universidad Nacional de San Marcos
 Biblioteca Central de la Universidad Católica del Perú
 Biblioteca del Instituto de Estudios Peruanos
 Biblioteca del Centro Francés de Estudios Andinos
 Biblioteca del Centro de Investigaciones Bartolomé de Las Casas
 Biblioteca del IFEA
 Persée: CNRS, l'Université de Lyon
 Sociedad de Investigación del Arte Rupestre de Bolivia (SIARB)
 Museum of Northern Arizona
 IECTA (Instituto para el Estudio de la Cultura y Tecnología Andina, Arica, Chile)
 Otros.



Dibujos y notas de investigación del Dr. Vishnu Shridhar Wakankar.



Una revisión de los aspectos teórico-metodológicos de la investigación rupestre. El caso de las quilcas de La Galgada, Perú*

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Resumen: Teniendo como base referencial los estudios en las quilcas del complejo arqueológico de La Galgada (3500 - 1500 aEC), el artículo hace una revisión de la estructura epistemológica usada por el autor para el estudio de los sitios arqueológicos con quilcas o arte rupestre en el Perú; exponiendo las premisas lógicas que sustentan los argumentos sobre temporalidad de estas evidencias y otras inferencias de carácter arqueológico. El autor concluye que la exposición de la lógica analítica en la investigación rupestre va a permitir corroborar o refutar los resultados de los estudios, coadyuvando al avance crítico de la disciplina y el mayor conocimiento de los materiales estudiados.

Palabras clave: Quilcas, Arte rupestre, Epistemología, Lógica tafonómica, Teoría antropológica, Arqueología, La Galgada.

Abstract: Using the research on the quilcas of the archaeological complex of La Galgada (3500 - 1500 BC) as a reference, the article reviews the epistemological structure used by the author for the study of archaeological sites with quilcas or rock art in Peru; exposing the logical premises that support the arguments about the temporality of these evidences and other archaeological inferences. The author concludes that the exposure of analytical logic of rock art research will allow corroborating or refuting the results of the studies, contributing to the critical advance of the discipline and a greater knowledge of the materials studied.

Keywords: Quilcas, Rock Art, Epistemology, Taphonomic logic, Anthropological theory, Archeology, La Galgada.

Introducción

Es un hecho que, para la arqueología y la historia del arte en el Perú, los estudios en las quilcas o el arte rupestre no constituyen una prioridad o una tendencia académica especializada. Y aunque esto se deba a muchos factores, dos de los más relevantes a mencionar son la carencia de una rigurosidad académica, y, en especial, a la poca exposición y crítica de las premisas teórico-metodológicas que sustentan estos estudios. Es concluyente, al menos en el caso peruano, que la ciencia en la investigación rupestre aún no se ha consolidado a partir de la evaluación y revisión de sus propuestas intelectuales.

Al convenir que es necesaria una postura epistemológica explícita en los estudios rupestres, iniciamos una revisión y autocritica de los procedimientos y aspectos lógicos de estos mismos estudios, tal como son utilizados por nosotros para abordar una investigación rupestre. En este sentido, esta exposición podría coadyuvar a una valoración reflexiva, que busque poner de manifiesto las referencias lógicas de nuestra tendencia académica, dejando abierta la posibilidad de mejorarla, corregirla o incluso desecharla.

Enfocados en la crítica de los estándares académicos en nuestras propias contribuciones, en el presente trabajo se hace un repaso de la investigación llevada a

cabo en el complejo arqueológico de La Galgada, Perú, cuyos objetivos fueron la determinación cronológica y la realización de inferencias sobre los aspectos culturales de las quilcas en el marco de diversos contextos de articulación social en los Andes. Aunque las conclusiones del estudio mencionado han sido provistas independientemente, aquí se enfatiza la manera lógica en que estas fueron logradas.

El complejo arqueológico de La Galgada

La Galgada es un renombrado complejo arqueológico del Periodo Precerámico peruano (circa 3500-1500 aEC), ubicado sobre los 1000 m de altura, entre los departamentos de Ancash y la Libertad, en la zona yunga de la cuenca del río Chuquicara. El complejo se caracteriza por la presencia de diferentes rasgos culturales, entre los que destacan arquitectura monumental, sitios con quilcas o petroglifos y áreas de paisaje cultural. El sitio de La Galgada fue reconocido por primera vez por Terence Grieder y Alberto Bueno en 1969, siendo estudiado posteriormente en varias temporadas durante la década del setenta, hasta que las investigaciones oficiales fueron cerradas en 1985 (Grieder y Bueno 1981; Grieder et al. 1988). A partir de su investigación, el sitio se constituyó rápidamente en un referente importante para las sociedades tempranas que avanzaban hacia la complejidad cultural en los Andes, las que precedieron el surgimiento y desarrollo de la civilización Chavín (Morales 1993).

Uno de los aspectos más destacables de los descubrimientos de La Galgada, fue el impresionante set de evidencias arqueológicas que incluían diferentes categorías de artefactos, entre los que se cuentan materiales líticos, de hueso, textiles, madera, conchas, fibras vegetales y cerámica. La mayoría de estos objetos se hallaron en contextos arqueológicos primarios, tales como ofrendas, entierros, depósitos, etc., por lo que fueron articulados en ensamblajes arqueológicos, siendo

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después objeto de análisis, interpretaciones sociales y discursos historicistas.

Muchos de los artefactos recuperados se analizaron técnicamente, especialmente aquellos obtenidos por las excavaciones de los contextos funerarios del sitio, habiéndose publicado un reporte comprensivo con los resultados (Grieder et al. 1988). Hasta hace poco, no obstante, aún estaba pendiente el estudio de varios sectores con arquitectura monumental y otras evidencias arqueológicas, en especial los diferentes sitios con quilcas relacionados; estudio que se llevó a cabo en preparación a la tesis de doctorado del autor (Echevarría López y Bueno 2013).

Aunque aún resta por investigar muchos otros aspectos de la civilización de la Galgada, se puede considerar que este es uno de los complejos arqueológicos mejor documentados del antiguo Perú.

Las quilcas

Entre los componentes arqueológicos registrados en La Galgada se incluyen tres sitios con quilcas o petroglifos (Fig. 1). El primero, con tres rocas, ubicado inmediatamente hacia el oeste de los edificios monumentales; el segundo, con una sola roca, se encuentra aproximadamente a un kilómetro hacia el oeste, entre la desembocadura de la quebrada Morín y el río Chuquicara; y el tercero, a 1500 metros en la misma dirección, se halla sobre la ladera ascendente de la margen izquierda de la quebrada Morín, llamado “Los Cóndores”, con decenas de rocas marcadas.

Hasta la primera década del presente siglo se habían publicado muy pocos reportes sobre las quilcas de la Galgada (Bueno y Grieder, 1988; Bueno, 1997, 2006) mencionándose por separado el sitio I, y el sitio III, que fueron descubiertos durante los trabajos de la década del setenta. El sitio II, y la tercera piedra o “piedra de los hombres” del sitio I recién fueron descubiertos por el autor de este trabajo en el año 2008 durante una de las visitas al sitio en compañía del Dr. Alberto Bueno Mendoza.

Como mencionamos, un reporte más comprensivo

sobre todo el complejo de quilcas de La Galgada fue publicado por nosotros el año 2013, incluyéndose todas las rocas del sitio I, el sitio II (compuesto por una sola roca), y quince rocas de sitio III. En este último sitio se hizo un muestreo aleatorio simple para seleccionar las piezas a ser analizadas, dejando una extensa proporción de rocas sin incluir en el reporte.

Las aproximaciones teórico-metodológicas de los trabajos de Bueno y Grieder incluyeron primero, un análisis formal para el sitio I y dos de sus piedras componentes; y posteriormente una aproximación interpretativa para el sitio III. El reporte de 1988 es muy interesante pues utiliza una metodología comparativa, sobre un análisis formal, tomando como base las expresiones gráficas halladas en los contextos funerarios de los edificios de La Galgada (en textiles principalmente), estableciéndose una relación estilística y cronológica hacia el material rupestre. Posteriormente, los trabajos posteriores de 1997 y 2006, solo utilizaron una premisa formal-interpretativa directa hacia las quilcas, extendiéndose en discusiones derivadas a partir de sus resultados.

Para nuestros fines, la aproximación comparativa expresada en el reporte de 1988 es relevante, pues implica varias premisas fundamentales en el estudio de un sitio con quilcas que hay que destacar. En primer lugar, se asume que las expresiones gráficas de las quilcas no necesariamente deben ser contemporáneas entre sí, lo cual es lógico suponer; y en segundo lugar, se establece implícitamente la posibilidad de analizar estas expresiones usando los mismos parámetros metodológicos aplicados en otras formas gráficas convencionales. Al aplicar estas premisas en un análisis operativo, Bueno y Grieder lograron distinguir dos periodos cronológicos en el desarrollo de la expresión gráfica de La Galgada, incluyéndola dentro de los ensamblajes artísticos del sitio.

Aunque este podría considerarse un avance importante en la investigación rupestre peruana, el estudio no tuvo casi ninguna repercusión a nivel epistemológico, debido a que se asumió tácitamente la metodología de análisis, la misma que fue abstraída de los estudios en los artefactos muebles del sitio y derivada después a los petroglifos.



Figure 1. Vista satelital del complejo arqueológico de La Galgada, donde se señalan los sitios con quilcas mencionados en el texto. Imagen © Google Earth 2015.



El truncamiento en los estudios técnicos de las quilcas de La Galgada, se refleja en el cambio metodológico en el análisis de estas evidencias, que derivó exclusivamente en la valoración de los aspectos interpretativos de los motivos y figuras, sin consideración de la cronología (asumida uniformemente para todos los sitios) o de las variaciones formales de las representaciones, que tienen implicancias culturales. Se puede asumir, evaluando el cambio en la tendencia de investigación en las quilcas de La Galgada, que la falta de un parámetro metodológico explícito de análisis restó objetividad a los estudios, variando su esquema lógico; perdiendo así perspectiva científica.

Por nuestra parte, el estudio que llevamos a cabo en las quilcas del complejo arqueológico se hizo usando similares aproximaciones metodológicas al reporte de 1988, pero con un acercamiento primario al material, con una escala mayor de análisis, y con el establecimiento de relaciones formales y temporales intra artefactuales hasta las conclusiones, que recién fueron comparadas con los estudios y análisis en otros artefactos arqueológicos.

Pensamos que los resultados de esta investigación son reveladores, con una secuencia aproximada de 4000 años y al menos cuatro fases para una larga tradición particular de producción de quilcas, específicamente petroglifos. Aunque el procedimiento de investigación fue expuesto parcialmente en el reporte del 2013, vamos a extendernos en la evaluación de los aspectos teórico-metodológicos y tratar de discernir en cierto detalle la aproximación intelectual que soporta sus resultados.

Hipótesis sobre las quilcas de La Galgada

Si consideramos las quilcas como simples artefactos, dos de los aspectos fundamentales a abordar en una investigación técnica o científica, tienen que ver necesariamente con la naturaleza física del objeto -propiedades intrínsecas-, y con los aspectos temporales de su producción y estado actual. Aunque las propiedades de los artefactos pueden advertirse con análisis por observación y experimentación controlada, los aspectos temporales, ya sea la secuencia o la cronología, requieren un mayor esfuerzo intelectual y una aproximación analítica compleja, especialmente cuando no es posible lograr precisiones cronológicas directas.

Debido a que la cuestión temporal condiciona la inclusión de las quilcas, o cualquier expresión gráfica, dentro de ensamblajes arqueológicos, discursos historicistas o parámetros interpretativos, este es sin ninguna duda el principal paradigma contemporáneo en la investigación rupestre. Si no se aborda este problema de forma lógica, los estudios rupestres corren el riesgo de volverse subjetivos, especialmente si están orientados directamente a aspectos interpretativos.

Dado lo anterior, se infiere que resolver el aspecto temporal ha sido el principal problema de la investigación en las quilcas de La Galgada. En este sentido, es bueno recalcar que el primer reporte sobre estos materiales (Bueno y Grieder, 1988) puso de relieve la existencia de dos momentos de producción de petroglifos, correspondientes al Periodo Precerámico Final (circa 3500-2000) y al Periodo Inicial (circa 2000-1000 aEC) de la cronología andina; temporalidad asignada por la comparación de los motivos de dos rocas del Sitio I, con los contextos gráficos excavados en el complejo arqueológico.

Es importante enfatizar, que la cronología asignada se estableció a partir de los mismos cambios formales

determinados en el corpus gráfico hallado en los contextos arqueológicos de La Galgada, que abarcan los mismos plazos cronológicos mencionados; por lo tanto, la muestra rupestre revisada fue arreglada usando un esquema temporal predeterminado. Aunque no se estableció una temporalidad para las quilcas desde el análisis de sus aspectos intrínsecos – microerosión, superposición o variaciones formales entre motivos (no derivados por comparación de otros materiales)–, es bastante evidente, luego del reporte de 1988, que se podían planear hipótesis sobre las quilcas de La Galgada, que cuestionaran su naturaleza temporal y cultural en conjunto. Las principales hipótesis fueron las siguientes:

1. La temporalidad, secuencia y cronología de las quilcas de la Galgada, puede ser determinada a partir de las propiedades intrínsecas de sus motivos.
2. Las quilcas de La Galgada constituyen una tradición de producción gráfica que abarca diferentes momentos de producción o manufactura, correspondiente a diferentes periodos cronológicos en los Andes.

Al establecerse como premisa la consideración de que las quilcas de La Galgada constituyen el testimonio de un largo proceso de producción de expresiones gráficas, las hipótesis planteadas fueron puestas a prueba mediante el examen directo de las quilcas, usando para esto una base analítica que incluye estrategias metodológicas y diversas referencias teóricas, como veremos más adelante.

Marco teórico-metodológico de la investigación

Para el examen de las hipótesis sobre las quilcas de La Galgada se utilizó el motivo o imagen figurada, como variable principal de análisis, siendo esta una de las cuatro categorías materiales de las quilcas, junto con el soporte, el entorno inmediato y el entorno medio atmosférico (Echevarría López 2009). Desde el punto de vista metodológico, el motivo puede considerarse como un “artefacto”, en términos de correspondencia material, para los fines de análisis del objeto de estudio.

A partir de la definición del motivo como variable discreta, incorporamos lógica tafonómica con la intención de comprender los factores de supervivencia material, y cómo ésta afecta la identificación e interpretación inmediata de la evidencia. Finalmente, se usó teoría antropológica con el fin de establecer una relación social hipotética entre constructos materiales (ensamblajes), definidos operacionalmente mediante procedimientos de distinción formal y clasificatoria.

Como se entiende, la base teórico-metodológica de la investigación en las quilcas combina diferentes teorías y procedimientos de análisis, como la tafonomía y la antropología culturalista clásica; y procedimientos operativos, que hacen uso de parámetros de análisis formal, utilizados en la historia del arte, o clasificatorios, usados en la arqueología. No obstante, es necesario establecer que la aproximación conjuntiva usada aquí, se orienta más a lograr un constructo lógico destinado a establecer o corroborar proposiciones en forma de hipótesis, los que puedan ser sujeto de test o refutación.

Tafonomía e investigación

“Lógica tafonómica” es, según Bednarik (2007), “una forma de lógica que ve el arte rupestre como el remanente



superviviente de una población acumulativa que ha sido sujeta a continua degradación la cual selecciona a favor de propiedades específicas que facilitan su longevidad (p. 163, traducción mía)". Tafonomía, por tanto, permite reconocer que todos los constructos formales y clasificatorios, a partir de alguna propiedad material del objeto, son solo un índice particular determinado, en cualquier muestra, que ha sido sesgado por un proceso de degradación continua. Esto implica que cualquier conjunto de motivos en las quilcas, aislado por cualquier medio, no es, per se, un indicador representativo de un comportamiento cultural pretérito.

Como se puede inferir, la lógica tafonómica tiene enormes implicancias en los procedimientos operativos de una investigación rupestre convencional, para cualquiera de sus variables materiales. Esto permite anular los índices cuantitativos, basados en el hecho de que la muestra rupestre solo constituye un remanente de un proceso de producción material (un índice parcial de un comportamiento cultural), siendo prácticamente imposible conocer la producción completa de quilcas desde que la tradición fue originada. En términos lógicos, este hecho permite establecer que cualquier muestra de quilcas a ser analizada, tiene un valor analítico que es independiente de la cantidad o volumen de elementos que la forman.

Las consecuencias analíticas de la lógica tafonómica en el estudio de los motivos de las quilcas son evidentes, permitiendo operar con confianza sitios complejos a partir de muestreos aleatorios, como ha sido el caso de La Galgada. El sitio III (ver Fig. 1), por ejemplo, jamás ha sido explorado en su totalidad y hacerlo requeriría un enorme esfuerzo de trabajo de campo. Al enfrentar un sitio como este a partir de un muestreo aleatorio, uno reconoce que solo está examinando una muestra minúscula de expresiones gráficas, las cuales, independientemente de su valor cuantitativo, tienen el mismo valor en la formación de los constructos formales o clasificatorios -complejos taxonómicos si se desea-, o en el establecimiento de hipótesis o la formulación de proposiciones científicas o humanistas; las que afectarían la muestra integral, como si se analizaran todas las piezas remanentes de un sitio completo, o todos los motivos de todas las rocas del yacimiento.

Aunque la lógica tafonómica permite corroborar la razón de un análisis en una muestra remanente, la validez del constructo formal elaborado sobre los motivos, es decir el valor "cultural" de cualquier conjunto de quilcas, solo puede ser corroborado por contrastación con una referencia arqueológica primaria u original (un contexto sellado, una secuencia estratigráfica, por ejemplo.), que refleje los mismos valores determinados por el análisis (el constructo ideal), que son intrínsecos a la muestra, independientemente de las variables cuantitativas. Si no se hace eso, entonces las formulaciones, los grupos aislados por procedimientos formales o clasificatorios, solo constituyen una creación ideal particular, una hipótesis abstracta, sin ningún valor real en la comprensión de los procesos sociales del pasado.

Análisis formal y teoría antropológica

El análisis formal practicado es de carácter abierto sin restricciones de especificidad gráfica o cuantitativa. El objetivo fundamental es advertir, en un arbitrario grado de parecido figurada, las regularidades en la

construcción de las manifestaciones gráficas de los motivos en las quilcas. Teóricamente el análisis formal examina la mayoría de elementos posibles que constituyen o hacen identificable la expresión gráfica, ya sea la forma o contorno (del volumen), la línea, el arreglo y la composición, convirtiéndolos en atributos para la distinción de motivos, y por ende para la clasificación y la elaboración de grupos o constructos formales, los que se asume tendría implicancias culturales.

Tatarkiewicz (2001) aclara mejor el significado de forma en el sentido que usamos aquí, "... la forma es la *disposición de las partes*. (...) En este caso, lo opuesto o correlativo de la forma son los elementos, los componentes o las partes que la forma (...) une o incluye en un todo" (p. 254. Cursivas por el autor). Al utilizar las partes de la forma, como un todo, se tiene libertad para establecer relaciones por parecidos, los que, aplicando lógica tafonómica, no están sujetos a ningún tipo de condicionamiento estadístico o criterio de selección particular predeterminado. Esto se da en la medida en que los mismos elementos de la forma, presentes en la distinción, están sujetos a parámetros de selección por factores tafonómicos, es decir, solo se aíslan partes de lo que ha sobrevivido (ha llegado hasta nosotros).

Una cuestión fundamental del análisis formal, es que este permite obviar la referencia descriptiva-interpretativa del motivo o figura, incluso en casos en que diferentes corpus gráficos describan similares representaciones. De esta manera se anula la interpretación a partir del reconocimiento de la expresión gráfica, que no significa ninguna referencia de valor para los estudios rupestres tal como los estamos planteando aquí. Cualquier elemento figurado en las quilcas, desde la representación de una línea, hasta la descripción de un animal en todos sus detalles, tiene valores formales que son los únicos que el análisis propuesto pondera para el establecimiento de parámetros comparativos y la conformación de grupos o constructos clasificatorios para la investigación.

Otro aspecto que se debe enfatizar, es que el análisis formal con fines de clasificación y elaboración de grupos, constructos o complejos morfológicos, no pueden ser testeado directamente o refutado en forma alguna. Lo que suma a la arbitrariedad selectiva. La distinción de grupos a partir de un análisis formal, constituye meramente una estrategia metodológica de manipular el objeto para nuestros propios fines, estando completamente condicionada por nuestras preferencias particulares, que a nivel de observación analítica seleccionamos cualitativamente en formas específicas. Desde el punto de vista arqueológico, el uso de este tipo de clasificación, por variables, para el establecimiento de complejos morfológicos, ha demostrado su utilidad histórica en la interpretación del pasado peruano al indicar que, como una base para el establecimiento de relaciones horizontales, "representan o simbolizan una época o un momento importante en el desarrollo histórico de un área cultural" (Muelle, Lanning y Hammel 1958: 3); por lo tanto, tiene plena validez metodológica.

Aunque el aspecto lógico del análisis formal es clave en la investigación de las quilcas, o de cualquier expresión gráfica del pasado, la principal razón para el uso de una metodología que establece una relación por parecido, y a partir de aquí una clasificación y la elaboración de grupos de motivos, es la teoría culturalista antropológica clásica. La teoría antropológica justifica la agrupación de los motivos, que son individualizados por sus características



formales, basados en la premisa de que constituyen expresiones de un mismo parámetro conductual. No obstante, hay que advertir que esta es una premisa fundada en un hecho etnográfico y por lo tanto puede ser fácilmente puesta a prueba o sujeta a refutación.

Kroeber (1963) hace una definición de cultura que ayuda a comprender los condicionamientos operativos de nuestro trabajo, él dice: “Cultura, (...) es siempre en primer lugar el *producto* de los hombres en grupos: un conjunto de ideas, actitudes, y hábitos —reglas si se quiere— desarrolladas por hombres para ayudarlos en su conducta de vida” (p. 10). Por lo tanto, cuando hacemos una distinción formal para el establecimiento de grupos por parecidos figurativos, lo que hacemos es asumir que estos parecidos están condicionados por factores culturales, es decir por los mismos o similares parámetros conductuales.

En esencia la teoría antropológica culturalista constituye una orientación empírica para el establecimiento de asociaciones significativas entre elementos constituyentes o partes de una unidad gráfica, o entre unidades gráficas en sí mismas, permitiendo la interpretación apriorística de sus relaciones en una estructura social, así como la no correspondencia a la misma, cuando no existen suficientes parámetros formales para establecer una relación gráfica vinculante. Es decir, cuando la distinción formal no permite establecer regularidades por comparación, se asume que los elementos contrastados constituyen o representan otros grupos, constructos o complejos morfológicos; interpretándose que son expresiones de particulares y diferentes parámetros conductuales, de los cuales están separados socialmente, y es posible que temporalmente también.

Como es evidente, la aproximación culturalista puede criticarse a partir de sus premisas interpretativas y empíricas, pero no se puede negar que ayudan a establecer hipótesis de relación social primaria entre las quilcas. Hay que decir que, a comienzos del siglo XX, la aproximación culturalista revolucionó los estudios arqueológicos peruanos, siendo introducida en su versión metodológica moderna por el Dr. Julio C. Tello, fundando de esta forma el tipo de cognición arqueológica contemporánea en el Perú (Tello 1923, 1929). En este caso, podemos asumir que los agrupamientos formales solo constituyen hipótesis ordenadoras, que, en el contexto de la antropología culturalista, permiten extender horizontalmente nuestra separación, asumiendo que todas las formas similares, pueden corresponder al agrupamiento y por lo tanto conllevar similares propiedades sociales —culturales— y temporales.

Hay que aclarar que la distinción formal no está en función de un factor cuantitativo, y no se afecta por el número de miembros o representantes en la variable

formal que representa un grupo. Es la pura definición formal, en cualquier artefacto existente, quilca o motivo, la que determina la existencia de la individualidad gráfica y la que conlleva los atributos culturales de su propia identidad figurativa; esto quiere decir que los grupos o constructos formales tiene el mismo valor, independiente de la cantidad de muestras objetivas existentes o usadas en su definición. Como ya vimos por la premisa tafonómica, la cantidad de quilcas existentes y motivos específicos de algún grupo está determinada por factores de supervivencia y no pueden explicar ni significar ningún valor cultural representativo por sí mismo; de allí que es la distinción formal la que determina la existencia del grupo.

Resultados e inferencias

Análisis formal

En la investigación, los tres sitios con quilcas fueron analizados por separado y en cada uno se determinaron varios grupos independientes de motivos, que después se integraron cuando los parámetros formales usados en el análisis permitieron correspondencias (Tabla 1). Se analizaron detalladamente decenas de motivos. Todas las muestras visibles en el sitio I, el sitio II y 15 rocas en el sitio III. En algunos casos, para facilitar el análisis, se usó el programa DStretch, pero en general todas las observaciones se hicieron a partir del examen directo de la evidencia en el campo y usando fotografía digital con luz natural como un auxiliar en el gabinete.

Como se puede ver en la tabla 1, se lograron aislar cinco grupos de quilcas que se distinguieron entre ellos por sus tendencias formales. Algunos grupos (como el 1 y el 4a) fueron muy similares, pero fueron separados debido a sus relaciones formales o estilísticas particulares. De esta manera, el grupo 4a, caracterizado por la descripción de peces, se halló más parecido a algunas imágenes encontradas en los contextos gráficos de Chavín de Huántar, siendo separado del grupo mayoritario (grupo 1) por un rasgo formal-representativo relevante, no obstante su claro lenguaje formal modular, simétrico y semifigurativo, que lo acercaba al grupo 1 en la serie.

Esta relación “estilística”, entendida metodológicamente aquí como una característica formal previamente determinada, se usó también para referir el quinto grupo (4b), que se relaciona a las expresiones gráficas de la civilización Chavín en su etapa tardía. Los motivos de este grupo describen ojos en forma aislada, elaborados a partir de diseños cuadrangulares o rectangulares (como se encuentra en el sitio II); o colmillos también aislados, formados por triángulos anexos a rectángulos que figuran ojos con descripción de pupila excéntrica, rodeado por una banda con volutas

Tabla 1. Cuadro de correlación de los grupos de quilcas de La Galgada y su presencia en los sitios analizados.

Grupo	Tendencia Formal	Sitio		
		I	II	III
1	Motivos seminaturalistas con diseños modulares (bandas)	X	-	X
2	Motivos abstracto geométricos, curvilíneas y agrupamiento	X	X	X
3	Motivos abstracto geométricos, formas complejas, compuestas, antropomorfos	X	X	X
4a	Motivos tipo Chavín Temprano	-	-	X
4b	Motivos tipo Chavín Tardío	-	X	X



laterales (como se halló en el sitio III).

Los elementos de la gráfica Chavín son diagnósticos y facilitan la individualización de las formas particulares en la muestra de motivos estudiados, pero hay que aclarar que esta relación solo se hizo cuando se definió la característica formal del motivo dentro de su contexto gráfico, en el sitio arqueológico. Y lo mismo se puede decir de los demás grupos, que se definieron en un análisis intra-sitio. De esta forma tenemos el grupo 1 caracterizado por motivos modulares, bandas y representaciones zoomorfas (Figs. 2 y 3); el grupo 2, conformado por motivos abstractos geométricos, líneas, curvilíneas y agrupamientos (Figs. 4 y 5); el grupo 3, conformado por motivos abstracto-geométricos más regulares, con arreglos de simetría y representaciones figurativas antropomorfas o zoomorfas (Figs. 6 y 7); y los grupos 4a y 4b (Figs. 8 y 9) que corresponderían a Chavín, los que ya hemos descrito previamente.

Secuencia y cronología

La secuencia se logró, principalmente, a partir de la determinación de superposiciones de motivos en las rocas, reforzándose la propuesta mediante observación de la disposición o distribución de los motivos en su soporte. Como se entiende, la secuencia solo establece el lugar de un grupo formal dentro de un cuadro de continuidad gráfica, que en este caso cubre todo el complejo de quilcas de La Galgada. Se entiende que cuando se determina la superposición o la evidencia de esta (que no implica necesariamente la yuxtaposición de motivos), todo el grupo de correspondencia formal asume las características temporales del motivo implicado.

Como dijimos, la secuencia sólo reconoce la posición de los grupos formales en una línea de tiempo, pero no establece directamente la relación formal, cultural; la duración particular o los traslapes temporales en la historia de los recambios figurativos para los mismos grupos. En La Galgada, las relaciones temporales más detalladas y la naturaleza de los cambios gráficos, fueron explicadas a partir de las cercanías formales entre los grupos de motivos ya separados en el análisis, por seriación; lo que incluye una estimación de la posible distancia temporal entre los grupos, que se reforzó cuando se propuso la cronología de los mismos.

Se hallaron al menos cinco rocas con motivos, que implicaron relaciones de superposición, ya sea del grupo 3 sobre el grupo 2 (ver Fig. 4), del grupo 1 sobre el grupo 2 y del grupo 3 sobre el grupo 4a (ver Fig. 8). Aunque en algunos casos las superposiciones no fueron muy claras y requieren revisión, la correlación se extendió con la distribución espacial de algunos motivos, usando la presunción que la ubicación aislada o “marginal” en el panel pudo implicar una posición tardía en la producción de quilcas, lo que ayudó a establecer un orden temporal definido (Tabla 2).

Por otra parte, la cronología relativa se propuso a partir del establecimiento de relaciones formales y estilísticas con otros corpus gráficos referenciados cronológicamente. El más importante fue sin duda el que se pudo establecer entre el Grupo 1 y el corpus figurativo hallado en los contextos gráficos arqueológicos de La Galgada; a lo que se sumaron los estimados provenientes de Chavín, ya sea de los contextos temporales tempranos como los de la “Galería de las Ofrendas”, como los de la gráfica más tardía. La cronología de los grupos que no presentaban

correlaciones de este tipo fue establecida mediante cálculos entre las faces temporales definidas, tomando en cuenta siempre los traslapes que los recambios gráfico-artísticos podrían implicar. De esta forma se obtuvo el siguiente cuadro cronológico (Tabla 3).

Para los estimados cronológicos el desarrollo de las tradiciones gráficas o “estilos” representativos dentro de los corpus figurativos referenciales son muy importantes, especialmente cuando la duración de estos estilos cubre un lapso considerable. El caso del corpus gráfico de La Galgada, con una expresión formal estable de al menos 1500 años, constituyó un ejemplo interesante.

Como se advierte en la Tabla 3, la Fase 2 Temprana fue estimada con un lapso relativo de 2000 años, que es una escala enorme para una inclusión temporal. Esta asignación se dio por contrastación en los índices del desarrollo gráfico en los artefactos de los contextos sellados de La Galgada, que evolucionan su diseño usando prácticamente los mismos elementos formal representativos, centrados en figuras zoomorfas. Al establecer la comparación, se corroboró la correspondencia de los petroglifos con la tendencia seriada más temprana en los otros materiales, lo que nos permitió incluso atrasar la temporalidad 500 años para las quilcas, y establecer el lapso final de esta tradición en el mismo momento de la influencia Chavín temprana, por los 1500 aEC, que es un lapso promediado ya que el cálculo del contexto excavado para esta influencia en el sitio es de 1610 aEC (Grieder et al., 1988: 69).

Al establecer los puntos de correspondencia cronológica para los grupos de quilcas, los parámetros temporales para los demás grupos fueron más fáciles de definir, siguiendo además las cercanías o los saltos formales en la secuencia que se pueden determinar examinando las series formales en la muestra. De esta forma se pudo reconstruir parcialmente la duración de la tradición de producción de quilcas en el complejo arqueológico de La Galgada, con un aproximado de 4000 años. Sin embargo, se advierte que cada sitio presenta sus propios problemas de asignación y las referencias generales se exponen aquí sólo con fines de ilustración del método.

Discusión

Aunque el método de investigación descrito nos ha dado impresionantes resultados, consideramos que puede existir una percepción de arbitrariedad en varios de los aspectos operativos de su aplicación. Por ejemplo, respecto a los criterios para la distinción de los grupos formales sobre una variable simple, la comparación de motivos (determinada por estos criterios); o la definición de las relaciones formales para fines de proponer la cronología. A esta supuesta arbitrariedad se le suma la aproximación culturalista, que establece un vínculo social de forma genérica, a partir de la asociación de los artefactos por un vínculo gráfico o material determinado.

Sobre esto, es impórtate considerar que el análisis formal solo se sujeta a parámetros de relaciones por parecido entre sus elementos, por lo que no está condicionado por ningún estándar preestablecido. De acuerdo a esto, no es posible considerar un parámetro ideal o único de criterios formales para el análisis; lo que afecta la comparación, la formulación de grupos, y la definición de cualquier relación formal entre estos constructos u otros corpus gráficos; que se hace con fines



Figura 2. Motivo del grupo 1 en la “piedra de las serpientes” del sitio I, quilcas de La Galgada. Imagen © Gori Tumi 2008.



Figura 3. Motivo del grupo 1 en el sitio III, quilcas de La Galgada. Imagen © Gori Tumi 2012.



Figura 4. Motivos del grupo 2 superpuesto por motivos del Grupo 3 en el sitio II, quilcas de La Galgada. Imagen © Gori Tumi 2008, enfatizada con DStretch.



Figura 5. Motivo del grupo 2 en el sitio III, quilcas de La Galgada. Imagen © Gori Tumi 2008.

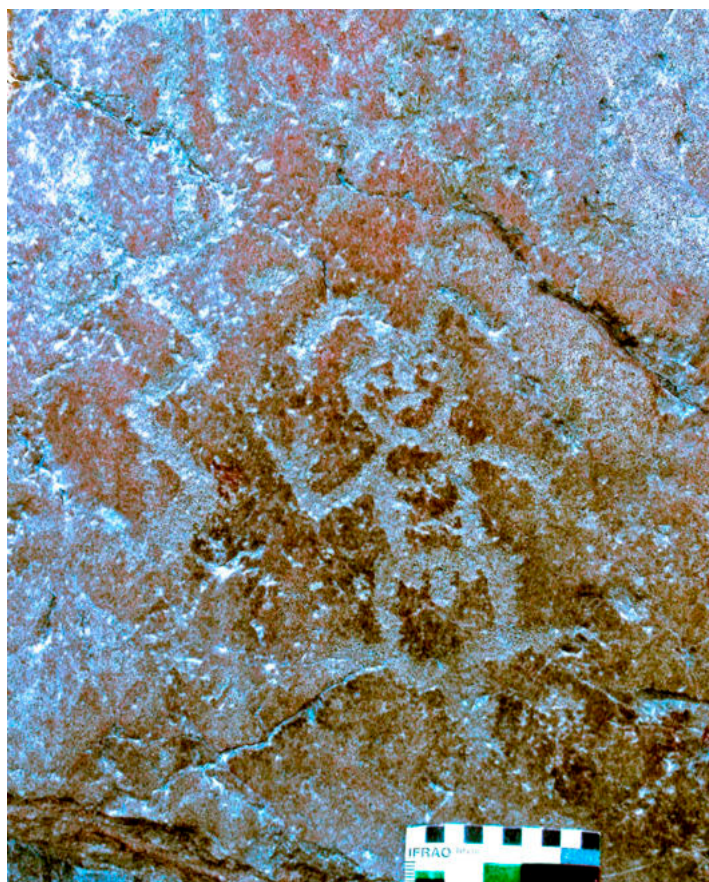


Figura 6. Motivo del grupo 3 en la “piedra de los hombres” del sitio I, quilcas de La Galgada. Imagen © Gori Tumi 2012, enfatizada con DStretch.

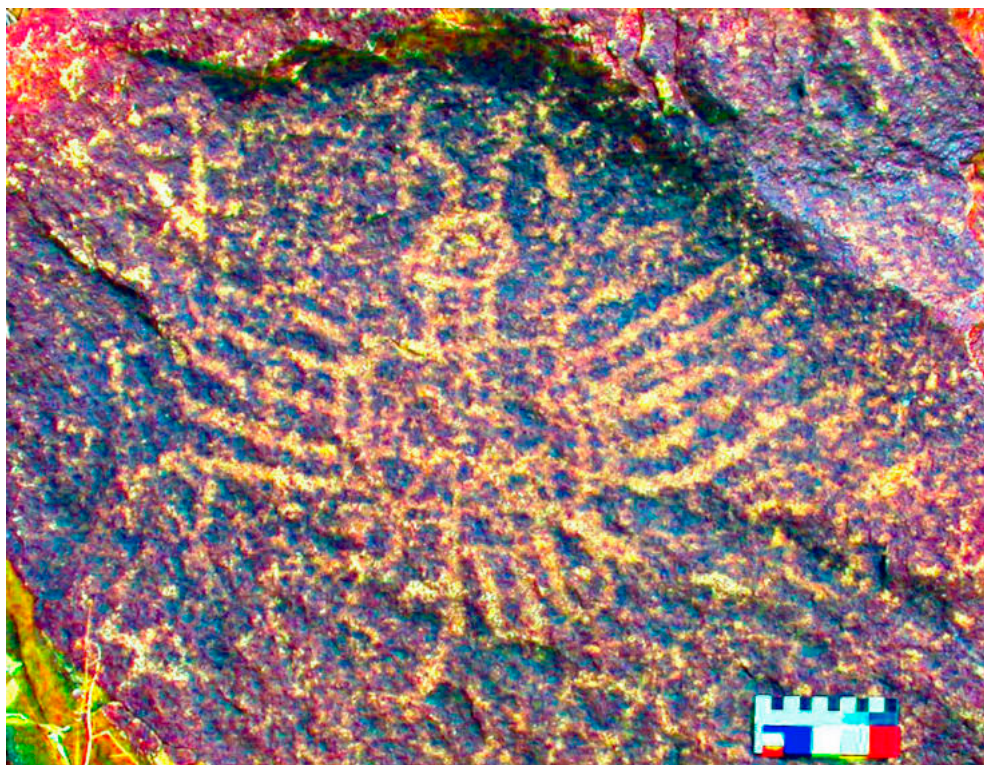


Figura 7. Motivo del grupo 3 en el sitio III, quilcas de La Galgada. Imagen © Gori Tumi 2008, enfatizada con DStretch.



Figura 8. Motivo del grupo 4a superpuesto por motivos del grupo 3 en sitio III, quilcas de La Galgada. Imagen © Gori Tumi 2008.



Figura 8. Motivos del grupo 4b en el sitio III, quilcas de La Galgada. Imagen © Alberto Bueno 2010.



Tabla 2. *Secuencia de las quilcas de La Galgada*

Fase	Grupo	Tendencia Formal	Sitio		
			I	II	III
4	4b	Chavín Tardío		X	X
3	3	Motivos abstracto geométricos, formas complejas, compuestas, antropomorfos	X	X	X
	4a	Chavín Temprano		X	X
2	1	Motivos figurativos zoomorfos y diseños modulares (bandas)	X		X
1	2	Motivos abstracto geométricos, curvilíneas y agrupamiento	X	X	X

Tabla 3. *Cuadro cronológico de las quilcas de La Galgada.*

Fase	Grupo	Tendencia formal	Cronología
4	4b	Chavín Tardío	1000 – 500 aEC.
3	3	Motivos abstracto geométricos, formas complejas, compuestas, antropomorfos	1500 – 800 aEC.
2tard	4a	Grupo 1 – Influencia Chavín Temprano	1600 – 1300 aEC.
2	2tem	Motivos figurativos zoomorfos y diseños modulares (bandas)	3500 – 1500 aEC.
1	2	Motivos abstracto geométricos, curvilíneas y agrupamiento	4500 – 3000 aEC.

de asociación cultural o cronológica. Y esta no es una arbitrariedad, es la condición del método. De hecho, la antropología culturalista no puede cuestionar la operación formal, y su aplicación se da sobre la base de un arreglo ya establecido (la clasificación formal con valor de hipótesis), que finalmente tiene implicancias conductuales o sociales. Se infiere entonces que la arbitrariedad no es real en términos analíticos.

Por otra parte, para ponderar la importancia del método, es necesario que este se aplique en función de claros objetivos de investigación, del uso correcto de las categorías de análisis, y de la definición precisa y explícita de los parámetros de comparación formal aplicados, que se expresan en la descripción operativa de la evidencia estudiada. De esta manera se tiene la posibilidad de poder revisar los procedimientos que han conllevado al planteamiento de hipótesis, o a la formulación de interpretaciones sobre el material arqueológico; y al mismo tiempo de refutar estos resultados. En la medida en que nuestro caso de estudio tuvo como objetivo el establecer un marco temporal de asignación material, debe existir la posibilidad, bajos los mismos parámetros epistemológicos que estamos explicando, de poder refutar o corroborar los planteamientos hechos, y proponer nuevas hipótesis e interpretaciones si es necesario.

Ya que la muestra está condicionada por factores tafonómicos, el análisis formal siempre es asistido por criterios técnicos como la superposición, la patinación, la conservación relativa, o la técnica de producción, entre otros, lo que permite ajustar los elementos a ser evaluados. El análisis formal, que implica un procedimiento de comparación controlado, no es una operación al azar, es un serio recurso de discriminación selectiva, que es constantemente asistido por una observación técnica del material; y que evita, también, la interpretación de lo que describen las quilcas (“... la más primitiva forma de comentario en arte rupestre”. [Bednark 2011: 275]) o el uso de parámetros estilísticos,

que pueden resultar temporal o culturalmente engañosos.

Pensamos que los alcances directos de la investigación en La Galgada, la secuencia y la cronología, han sido expresados en términos de proposiciones refutables y las hipótesis nos han permitido establecer relaciones directas con sociedades con confirmados corpus gráficos. Este hecho ha facilitado la implementación de hipótesis derivadas para la asociación cultural y la interpretación de lazos formales y estilísticos dentro de determinadas esferas sociales pasadas, lo que probablemente hubiese sido difícil de realizar si el análisis no hubiese revelado semejanzas a nivel gráfico. Este hecho confirma en parte el valor de la metodología implementada y permite extender la discusión a otros niveles materiales.

Hasta aquí, somos conscientes que una metodología de análisis que se base principalmente en relaciones por parecido es todavía una aproximación muy endeble, aunque por más de 100 años haya probado su valor desde que el Dr. Julio C. Tello la implementó en la arqueología peruana. No obstante, lo que debe enfatizarse, es que el método de análisis, tal como ha sido expuesto, busca básicamente establecer un argumento mínimo, relativo, de la situación temporal y cultural para las quilcas de un sitio, planteando hipótesis y proposiciones refutables sobre estas evidencias. Todavía requerimos aproximaciones cronológicas directas, y cuando las tengamos podremos probar con absoluta seguridad hasta donde logramos llegar con esta propuesta.

Conclusiones

Los estudios llevados a cabo en el complejo de quilcas de La Galgada han demostrado la enorme posibilidad epistemológica de una investigación que usa una variable determinada, la variable formal, para abordar directamente aspectos tan cruciales como los de la secuencia y cronología de estas evidencias. Este trabajo, conservando un determinado orden metodológico, ha



llevado los resultados derivados al esquema de hipótesis, extendiendo sus proposiciones a planteamientos sobre la naturaleza histórica y cultural de estas evidencias, lo que no se había conseguido anteriormente usando otras estrategias o aproximaciones de investigación.

Dado que la mayoría de los estudios rupestres peruanos carecen de claros parámetros metodológicos, es que se requería una explícita exposición teórico-metodológica de las nuevas propuestas de investigación en estos materiales. Basado en ese argumento, nuestro trabajo ha tratado de hacer explícita estas consideraciones, con la intención de poder verificar la intervención, los métodos y finalmente tener las herramientas lógicas para cuestionar o incluso refutar estos mismos estudios. Pensamos que hemos podido justificar epistemológicamente nuestro trabajo, lo que sustenta y respalda las hipótesis y conclusiones alcanzadas.

Creemos firmemente que una adecuada propuesta teórico-metodológica es una condición fundamental para la investigación rupestre contemporánea, en ese sentido, este artículo es un esfuerzo dirigido a facilitar la comprensión de nuestro propio aporte a estos estudios.

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General observations on the rock art of Satpura Tiger Reserve, Madhya Pradesh

PARTH R. CHAUHAN

Introduction

This paper reports general observations from two occurrences of rock art in the Pachmarhi Tiger Reserve visited casually during a bird survey. One of the occurrences includes only pictograph while the other one includes pictographs and petroglyphs. It is not clear if these sites were visited and reported earlier by other researchers. Though, pictographs are commonly known across central India including the Pachmarhi region, such engraved grooves are not common. The paintings depict animals, human figures, warriors, horseback riders, geometric patterns, dancing scenes and so forth (in red, orange and white, and black pigments) and appear to tentatively belong to Mesolithic and Historical periods. Chalcolithic themes were not observed but proper survey and documentation at the sites may yield them in the future. The engraved patterns (many naturally weathered since production) are in the form of short and straight parallel lines as well as intersecting designs, and their chronological relationship with the adjacent paintings remains ambiguous. Interestingly, these engravings are located on a sandstone ledge at the periphery of the rockshelter but appear to be largely missing elsewhere at the site including inside the rockshelter. It is also not clear if these engravings represent archaeological 'artwork', some form of notation/counting, post-occupational (recent?) graffiti or simply marks resulting from sharpening or grinding some object(s), i.e. weapon(s) or tool(s). In any case, systematic research is required in this central zone to locate more engravings and compare them with comparable evidence elsewhere from India.

In recent years, our understanding of the nature and age of known global rock art occurrences has changed drastically due to new discoveries and geochronological applications. The oldest known examples of prehistoric engravings are now dated to 101-94 Ka & 77 Ka and occur on portable nodules of ochre and the oldest painted evidence (also portable) is ~73 Ka, both coming from Blombos Cave in South Africa (Henshilwood et al 2018). The oldest known rock paintings in cave or rockshelter context comes from Spain and are (controversially) thought to be >65 Ka in age and allegedly belong to Neanderthals (Hoffmann et al 2018). In Asia, the oldest known rock paintings were recently reported to be ~45 kyr old from Indonesia (e.g. Aubert et al 2019; Brumm et al 2021) and has major implications for India if those populations used it as a dispersal corridor to reach Southeast Asia. The oldest known engravings on a cave/rock art wall belong to Neanderthals and are dated to >39 Ka at Gorham's Cave in Gibraltar (Rodríguez-Vidal et al 2017).

The Indian subcontinent has yielded a large number of rock art sites but very few occurrences have been properly dated and are currently restricted to less than 5000 years including a honeycomb-style engraving from the Kurnool region of Andhra Pradesh (Tacon et al. 2013) and a painting from the Pachmarhi region in Madhya Pradesh (Banerjee and Chakraverty 2015). In India, rock art in the form of engravings, etchings and bruising are

most commonly known from the Himalayan zone and southern India, and usually attributed to the Neolithic and younger times (e.g. see Chakravarty 1984). Additional but comparatively fewer occurrences have been reported from eastern India and most recently from the Konkan zone of Maharashtra (Garge et al 2018). One of the most dense occurrence of engravings in rockshelter/cave context are those from the site of Edakkal Caves in Kerala (Fawcett 1901). Regarding engraved portable art, two of the best prehistoric examples from India are the undated Chandravati core from western India (Sonawane 1987) and the ~39 kyr old and ~25 kyr old ostrich eggshell fragments from Chandrasal and Patne, respectively (e.g. Kumar et al 1992). For comparison, the oldest known engraved ostrich eggshell in the world come from Diepkloof in South Africa and are ~60 kyr old (Texier et al. 2010).

The rock art sites reported in this paper were encountered accidentally during the Satpura Bird Survey which took place from February 2nd to 4th in 2019 rather than being a pre-planned archaeological survey. The bird survey started with some orientation at Madaiby the forest officials before everyone separated into several groups to document birds at different locations in the tiger reserve. The author was accompanied by Mr. Anup Prakash (The Habitats Trust) and Dr. Suhel Quader (Nature Conservation Foundation). Due to the associated time constraint, only a few minutes were spent at each of the two rock art sites and only a few basic photographs were taken; it was not possible to document or measure the evidence in detail as is traditionally done. Hence unfortunately, several of the photographs are missing a photographic scale as they were taken with a zoom. At the moment, it is not clear if these sites (Fig. 1) have been reported earlier in a specific manner (e.g. Dubey-Pathak 2013). No known villages are in the vicinity of the two discussed sites as many of them in the interior of the tiger reserve were relocated long ago by the Government of India. However, the author was able to document geo-coordinates through the help of Canon and Nikon cameras with an in-built GPS feature.

Site A (Neemdhan forest camp)

This rock art site (geo-coordinates: 22°31'22.1159999999945", 78°18'48.3719999999740") is located about 500 m northeast of a small forest camp at Neemdhan) situated in the center of a low and flat area within the Satpura hills (808 m AMSL). The rockface here is about 15 to 20 meters high and contains leaching stains of iron oxide and other minerals on the bedrock (Fig.2); it also has a large opening in the ceiling of the shelter due to longterm chemical weathering (Fig.3). The painted panels include such images as stylized fauna, human figures in different poses including group dancing and with bow and arrow and long wavy hair (Figs.4-5). At places the paintings are purposefully situated on the smoothest available surfaces sandwiched between natural horizontal layers of pebble-sized clasts which is a common sedimentary feature of Gondwana/Satpura bedrock geology (Fig.6).

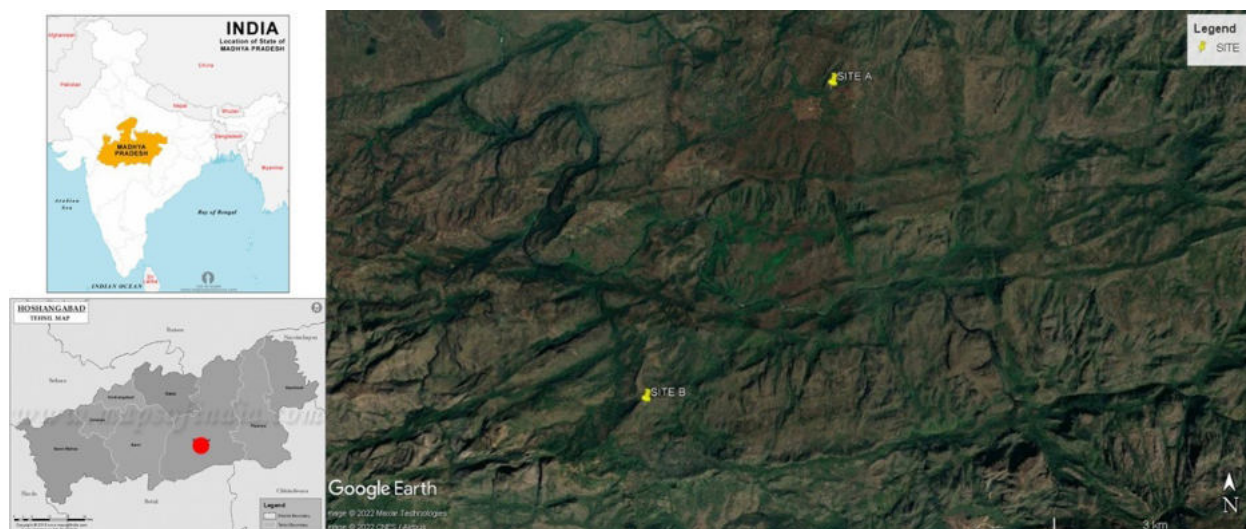


Figure 1. Location map of Sites A and B within the Satpura Tiger Reserve, M.P.



Figure 2. One of the rock shelters faces at Site A (near Neemdhan forest camp) One of the rock shelters faces at Site A (near Neemdhan forest camp).



Figure 3. Another angle of the rock shelter at Site A (near Neemdhan forest camp).



Figure 4. Multiple overlapping figures of animal, human and other images at Site A.



Figure 5. Depictions of human figures with bows and arrows at Site A.



Figure 6. Depiction of bovid-like animals and a human figure with weapons (?) at Site A.

Site B (Engraved grooves site)

The location of this site (geo-coordinates 22°28'47.8859999999986", 78°17'9.73200000001824") is approximately 15.5 km west of Pachmarhi town and ~5 km northeast of the Bori forest rest house which is situated near the Barasingha relocation center. The rock art site (923 m AMSL) is situated at the base of a vertical Gondwana/Satpura escarpment or rock face over 30 meters high from the forest road which is directly adjacent to the rock shelter (Fig. 7) and a



Figure 7. Vertical cliff next to the road at Site B.

forest department locational marker (Fig. 8). The rock art here includes one painted panel of battle scenes including human figures with bows and arrows, much of which are now highly eroded and/or stained by chemical weathering (Fig. 9). The remaining paintings include outline, geometric, monochrome and bichrome images, many of which are purposefully situated in the inner parts of smooth horizontal recesses (Fig. 10). In general, painted themes include common fauna, ambiguous feline-like Figures, and human Figures of varying sizes including warriors with shields and weapons, soldiers on horseback and a line of dancers holding hands (Figs. 11-15). The site also yielded a possible man-made (or a natural cavity that was later modified) cavity on the floor that may have been used for food processing or pigment processing (Fig. 16).

However, the most intriguing evidence at this site is a series of at least 40 engraved grooves/lines located on a small horizontal ledge at least two meters in length, located in front of the rock shelter (Fig. 17); some faded paintings of warriors with weapons are associated with a part of the engraved ledge (Fig. 18). From a general sense (as there was no time to properly measure or count the grooves), the engraved lines vary in length from about 4 to 20 cm although almost all of them are about 1 to 2 cm in average thickness and depth (Figs. 19-20). The



Figure 8. Forest department locational marker at Site B.



Figure 9. Faded white images of human figures with bows and arrows at Site B.



Figure 10. Faded monochrome and bichrome images at Site B.



Figure 11. Wild canid/cervid (?) fauna depicted in white at Site B.



Figure 12. Stylized animal figures (feline?) and warriors on foot and horseback in red and yellow at Site B. Note the overlap with white figures in the background.



Figure 13. Faded white images of human figures with bows and arrows at Site B.



Figure 14. Multiple human and animal figures (mostly white), many overlapping and of different sizes at Site B. Human figures indicate different activities including hunting/warfare and honey collection?



Figure 15. Red and yellow human figures (dancing?) and abstract design in red outline at Site B.



Figure 16. Cupule-like or mortar-like feature at Site B.

best preserved lines have visible cross-section that grades between “U” and “V” in general morphology. It is not clear whether these engraved lines/grooves were made with a stone or metal implement and what purpose they served. At some locations the lines intersect to form a cross-hatch design while at other locations only parallel lines are visible. Although some of the paintings are protected inside the natural recesses, most of the site including the engraved grooves is exposed to all natural elements. Several of the lines had already faded (Figs.

21-22) as the entire series of grooves is situated on a ledge made of coarse-grained sandstone bedrock prone to rapid weathering.

Discussion and conclusion

In India, rock art in the form of engravings, etchings and bruising are most commonly known from the Himalayan zone and southern India, and usually attributed to the Neolithic and younger times. Additional but comparatively fewer occurrences have been reported from eastern India-including in association with paintings - and most recently from the Konkan zone of Maharashtra on lateritic bedrock. Except the Konkan evidence which is all produced on the ground as open-air sites, almost all other known occurrences are parts of rock shelters or boulders. In comparison to all of these zones, central India has yielded very little evidence of engravings, etchings and bruising. While this is probably attributable to a number of factors including the unsuitability of (some) bedrock for anthropogenic physical modification and diverse regional cultural practices, another major factor can also be the lack of adequate archaeological surveys and inadequate visibility due to thick vegetation and inaccessible areas such as gorges, ravines and caves. Oneshared or common feature between all the known prehistoric portable and non-portable engravings (as cited in the introduction), including 1) Middle Stone Age ochre fragments, 2) cave wall design by Neanderthals, 3) engraved ostrich eggshells from Africa and India and 4) an engraved core and cave wall designs in India, is that they are all represented by straight lines in parallel or



Figure 17. Crosshatched or overlapping engraved grooves at Site B.



Figure 18. Highly faded crosshatched or overlapping engraved grooves on the bottom and images of warriors on top, at Site B.



Figure 19. Another perspective of the crosshatched or overlapping engraved grooves at Site B.



Figure 20. Another perspective of the crosshatched or overlapping engraved grooves at Site B.



Figure 21. Highly faded engraved grooves at Site B.



Figure 22. Another perspective of the engraved grooves at Site B.



geometric cross-hatched patterns. While some exceptions of curved lines and figures do exist, the main factors affecting this morphological variation (straight vs curved lines) is the medium and size of the artwork. In other words, when small engravings are made on hard surfaces such as ochre, cave walls and ostrich eggshells, the only possible option is to make straight lines including the Satpura engraved grooves mentioned in this paper. When much larger (both in terms of image size and the width of the lines) images are engraved in softer materials such as sandstone or laterite, curved lines are able to be formed (e.g. Edakkal and Konkan rock art). The distance between the two rock art sites mentioned in this paper (Sites A and B) is approximately 5.5 km and it is not known whether the chronological record of occupation/rock art at both sites is contemporary or vastly separated. Not all paintings at both sites were clearly discernible and require extensive digital photography followed by image enhancement using various software. Hence, the number and types of subject matters of the paintings as discussed above should not be viewed as being comprehensive. It is also not clear if the engraved grooves at Site B are a result of some functional activity such as sharpening an implement or meant to be simple art/decoration. It is to be noted that the general absence of polished axes/adzes (as commonly known from Neolithic contexts elsewhere in India) in central India disqualifies these engravings/grooves as sharpening/polishing evidence of the same; such sharpening/polishing grooves have been commonly reported from bedrock contexts elsewhere in India where polished axes/adzes occur frequently. In fact, it is possible that the engraved grooves at Site B may not even be archaeological in nature and age but rather, a result of recent human activity such as by local herders/shepherds prior to the evacuation of nearby villages (personal communication: Rajesh Poojari 2021). In any case, it is interesting that the occurrence is on a coarse-grained Gondwana/Satpura rock surface. The coarse-grained nature of that bedrock may have discouraged extensive engravings, bruising and etchings in such regions and many such occurrences may have weathered significantly by now and hence not easily visible/discernible. However, it is notable that even where the rock face/surface is smooth (i.e. Vindhyan bedrock), engravings are still generally absent. More time is required for proper systematic documentation at these sites including comprehensive overlapping digital photography and application of D-Stretch software for image enhancement to obtain the most accurate counts of individual paintings and engravings.

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Dibujos y notas de investigación del Dr. Vishnu Shridhar Wakankar.



Austronesian Culture of Wanshan in Taiwan: An Ethno-Rock Art Research

ZHANG JIAXIN

Introduction

The research paper is focused on the rock art and its Ethno-rock art evidence in the region of Wanshan of Taiwan. This paper is based on the ethnological materials, archaeological site and Austronesian culture trait enhancements to corroborate the interpretation of Wanshan Rock Art. Wanshan Rock Art site is the only rock art site found in Taiwan. It is located in the southwest of the Central Mountain Range in Taiwan. It is a traditional hunting area for the Rukai people. The remains of cultural relics and physical images unearthed near the site of Wanshan Rock Art site are consistent with the data of ethno-rock art, providing valuable evidences for the interpretation of rock art. Since Taiwan is at the intersection of land and ocean civilizations, it is also the northernmost part of the Austronesian. Wanshan rock art shows typical Austronesian style as well as the impact by the prehistoric culture of the southeastern coast of the mainland China.

Ethno-Rock Art: an introduction

Research into *Ethno-rock Art* (Tiway 2013:1-16) is part of a wider framework, which includes everything constructed by our ancestors to his predecessors. The theory of *Ethno-rock Art tries to interpret and understand rock art by establishing its linkages with the ethnic group, folklores, myths, beliefs, customs, rituals and their cultural practices*. This theory provides us a solid basis for our assumptions about the people, their customs and their practices who put their labour on the stones and left a mark for the future generation of scholars to study and interpret these tangible artifacts by linking them with the living tradition of their art objects, folklores, customs, ritual, festivals among the indigenous community and local inhabitants of the studied regions. Ethno-rock Art provides links between the living art practices and the early art in different context especially rock art. So, this theory is based on the amalgamation of archaeology and anthropology.

Wanshan rock art: the region and local inhabitants

Megalithic Culture Wanshan Rock Art are located in the southwest of the Central Mountain Range (中央山脉), Wanshan tribe, Maolin District (茂林区), Kaohsiung, Taiwan, the upper reaches of Zhuokou River (浊口溪), and at the northern foot of the Wantoulan Mountain (万头兰山) (22° 57'N, 120° 47'E). According to household registration data during the Dutch colonial period, the Wanshan tribe lived in the upper reaches of Zhuokou River at the southern foot of the Central Mountain range until 1647. Later, when Taiwan was colonized by Japan, in order to facilitate the convenient management of the Japanese government, the Wanshan tribe was moved to today's Maolin district. According to the oral records of the local aborigines and relevant legends, before the relocation, the Wanshan tribe and the surrounding aborigines were already aware of the existence of Wanshan rock art although the outside world had no idea of them.

The discovery of Wanshan rock art in the field of modern scientific research began in 1979 when two sophomores Lv Yiping (吕一平) (who is now a material chieftain of the Wanshan tribe) and Fan Zhiqin (范织钦) (from National Pingtung University of Education) reported to their art teacher Gao Yerong (高业荣) about the rock art of Wanshan. The same year, accompanied by the head of the Wanshan Lin Qilin (林启临) and his son Lin Fubao (林福宝), they expedition to Wanshan to investigate and discovered the first group of Kopaca'e. So far, there are totally fourteen groups discovered on the four groups. In 2008, Wanshan rock art designated as one of the "National Seven Sites" by Taiwan Ministry of Culture. (Fig.1)

Expedition of Wanshan rock art

Generally, the expedition to Wanshan rock art takes place from November to March of the following year, that is, the dry season, during which the rivers are clear and shallow and there is less rain, making it relatively safe to enter the mountains. Starting from Wanshan tribe of Rukai nationality, which is nearest to Wanshan rock art, it

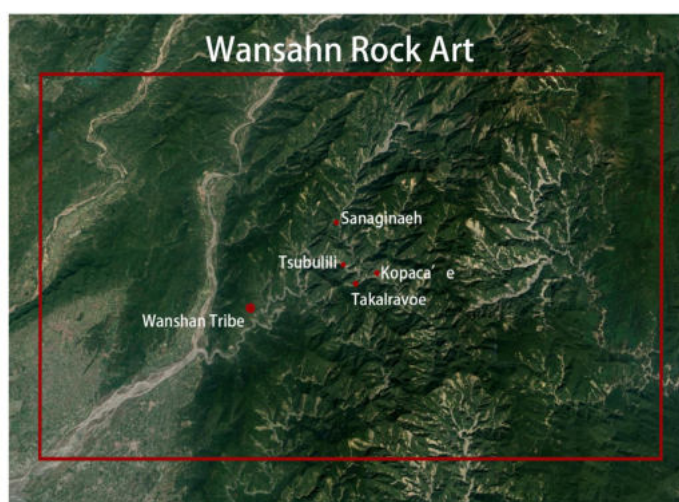
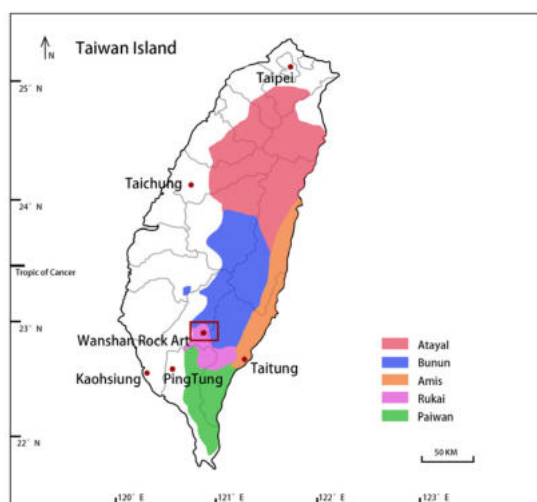


Figure 1. The map of Wanshan Rock Art.



takes two hours to drive to the mountaineering entrance. According to the customs of the local Rukai aborigines, who believe that entering the Wanshan rock art will disturb the spirits of the ancestors, therefore, a simple ceremony will be held to worship the ancestral spirits of mountain gods at the entrance before entering the mountains. It took us one day to walk to the hunting hut (a place for rest when hunting) of the youth of Wanshan tribe, and a three to five hours hike the next day to reach Sanaginaeh and Takalravoe, on the third day, it was a three-hour hike to Kopaca'e and Tsubulili. The conditions for the expedition to Wanshan rock art are extremely difficult. Not only does it take 5-6 days to go back and forth on foot, but also there are many rock falls, cliffs and mud rock flows in the mountains, in addition, coupled with frequent typhoons and earthquakes, rock loose, which brings a lot of uncertainty and danger to the route and process of expedition (Fig.2).

Each tribe of the Rukai has a well-defined hunting ground. Hunting is usually carried out in the slack season, using shot guns and traps to catch animals such as deer, wild boars, goats and muntiacus. Wwomen are not allowed to participate in hunting. The area where Wanshan rock art is located in the traditional hunting area of Wanshan tribe of the Rukai, which borders the tribes of Paiwan people and Bunun people. Wanshan rock art is composed of Kopaca'e, Tsubulili, Sanaginaeh and Takalravoes, mainly including cupules, human masks, whirls, concentric circles, etc.; according to the author's on-site observations, the rock art of cupules on Tsubulili discovered by Liu Yi Chang (刘益昌), a professor at the Institute of History and Linguistics of Taiwan's Academia Sinica, should be misjudged, and the traces on the rock should be caused by natural weathering, not be made manually. The rock art types of Wanshan are petroglyphs only. According to field observations, some of them are made with stone tools, while some of them are made with metal tools; cupules, whirls and concentric circles are mostly made with stone tools, while human masks are mostly carved by metal tools. In general, due to climate and natural environment, Wanshan rock art is severely weathered and mostly covered with moss, which brings some difficulties to image identification and research. At present, the images on Kopaca'e and Takalravoe are

relatively complete and clear.

Kopaca'e (TKM 1) is located on the top of a 1,430m. cliff, 7.5m. high, 11.4m. long, 06m. wide, with an area of about 802 m ($22^{\circ}57'20.530''N, 120^{\circ}47'18.193''E$). Located on a gentle slope at the top of the mountain, about 400 m. from the Zhuokou River Valley, the rock mass can be reached at the junction of the north side and the gentle slope. There is a cavity at the lower edge of the south side of the rock mass, which can be used as a shelter from wind and rain. Occasionally, hunting aborigines take a rest here or stay overnight. The image on Kopaca'e is the richest and most representative among four groups of Wanshan Rock Art. Figure 3 is a combination of mask and whirl. According to observation, the mask and whirl were not finished in the same period. The whirl was chiseled with stone tools, and the mask was made with metal tools. Although it looks like a single image, based on the analysis of the production tool, a mask should be added afterwards. Figure 4 shows a sun ray "human figure" made with metal tools. The pattern of squatting with hands and legs, also known as "squatting figure", is still very common in wood carving, embroidery, jade and metal products of contemporary indigenous people.

Tsubulili (TKM 2) is located in the south of Wanshanxi Gorge, the northern foot of Wantoulan Mountain, 940 m ($22^{\circ}57'29.059''N, 120^{\circ}46'38.823''E$). above sea level. The rock mass is about 400 cm long, 360 cm wide and 220 cm high. The rock has collapsed into two pieces. On the east side of the rock are cliffs, under which lies a ravine. On the east and west sides of the rock are the remains of a slate house, which, according to local aborigines, should be a hunting lodge; there are also signs of farming near Tsubulili. The "cupules" and "grooves" on Tsubulili, though identified as rock art by Liu Yi Chang and Gao Ye Rong, were later identified as part of the Wanshan rock art site by Taiwan Ministry of Culture and the Kaohsiung Cultural Bureau, the patterns on the rock surface is lack of regularity, the distribution is natural, the edge of the pattern has no processing marks, which seem to be caused by rain dripping and corrosion of moss. There are plenty of hunting and farming sites around Tsubulili, and Taiwan Ministry of Culture is currently carrying out an archaeological excavation of the Cacevakan around Tsubulili, which may provide important information for



Figure 2. Along the way of Wanshan rock art expedition in March 2019.



Figure 3. Kopaca'ewhirl and mask (Source: Ministry of Culture, Taiwan).



Figure 4. Kopaca'e "sun-ray" human figure (Source: Ministry of Culture, Taiwan).

the textual research of the Wanshan rock art.

Sanaginaeh (TKM 3) is 1,080 m. above sea level, with a drop of 50 m. from the river valley, and an area of about 3002 m ($22^{\circ}58'7.651''N$, $120^{\circ}46'41.397''E$). It is composed of two pieces of sandstones, with artificially piled slabs in the cracks (about 30-80 cm) between the two pieces of sandstones; Sanaginaeh's images are dominated by cupules and grooves, but the weathering and moss are so severe that the images are hard to identify.

Takalravoe (TKM 4) is adjacent to Tsubulili ($22^{\circ}57'11.012''N$, $120^{\circ}46'58.832''E$). There are images of human masks, human figures, grids, whirls, cupules (Fig.5), concentric circles (Fig.6), snake veins, etc., among which the most common pattern is cupules. It is due to the influence of rainfall in rainy season and terrain characteristics, Takalravoe is not suitable for long-term residence so it is difficult to form a large-scale settlement here. Local folklorists believe that it was a stopover for the aborigines stay intermittently while hunting in the mountains. It is important to mention here that to understand the folklore in context of rock art is an untouched issue to be focused more for better understating of the rock art in its tradition. The names of these four groups of rock art are all transliterated from the pronunciation of Wanshan language. There are six language groups in the Rukai nationality and they do not communicate with each other. The Wanshan language spoken by the Wanshan tribe, which has no written characters,



Figure 5. Takalravoe row of cupules.



Figure 6. Takalravoe Concentric Circles.

is one of them. Kopaca'e is named after a local legend about rock art, meaning "pattered stone"; Tsubulili and Takalravoe are the names of the local terrain; and Sanaginaeh is the name of a nearby river.

Cacevakanv. There are remains of more than 20 Cacevakan (Slate Houses Style) in the traditional hunting area of Rukai living near the Wanshan rock art (Figs.7-8). Cacevakan is a traditional house built by Rukai and a small number of Paiwan, Bunun and Atayal people. The roof of the cacevakan was modeled after the scales of snakes and has a good waterproof effect. The walls were superimposed layer by layer for shock absorption and prevention. In Rukai, the cacevakan is a symbol of the ancestral spirit of the tribe, so significant festivals and celebrations are held around the cacevakan for worship. The architectural form of the cacevakan of Rukai varies with different social classes. The house that has wooden carved ancestral spiritual pillars inside and images of the cottonmouth snake on the walls belong to the chieftain and aristocrats. The function of these cacevakan also varies with different locations: Cliffside trees are often used for hunting; on the hillside are usually temporary farmhouses; and the apartments that are built on the hills are for long-term occupancy. It was believed by the Rukai aborigines that the creators of rock art were ancestors who once lived in Cacevakan. Currently, Taiwan Ministry of Culture, has organized an archaeological team to excavate Cacevakan, hoping to find empirical evidence to prove the relationship between the two. Cacevakan can also be used as a type of megalithic culture in a broad sense. It has a certain relationship with the megalithic culture widely existing in the eastern coastal areas of Taiwan. Cacevakan, which is widely distributed around rock art sites, can also be seen as a sign of the coexistence of megalithic culture and rock art, or as a continuation of the slab graves form.

Ethno-rock art analysis

The present Rukai was named by Utsurikawa Nenozo. However, before that, Rukai was called by Inokanori and Torii Ryuzo as "Tsarisen" which means "people live in mountains". Now, the Tsarisen includes two ethnic groups of Rukai and Paiwan. The Rukai was a hierarchical society made up of



Figure 7. Cacevakan of Wanshan tribe.



Figure 8. Cacevakan of Wanshan tribe.

aristocrats and civilians, and practiced primogeniture. There, the peers of the father or mother shall all be called "father" or "mother"; the tribal lands, costumes, nomenclature, headdresses, etc. are all owned and controlled by the aristocrats, so certain rituals are required for the civilians who are under the jurisdiction of different aristocrats to achieve these rights. The Wanshan tribe is one of the oldest tribes of Rukai. According to the research by Paul Jenkuei Li (李壬癸), the birthplace of the Rukai should be the old settlement of Wanshan, and then the Rukai people moved to other places and formed the modern distribution pattern based on the structure complexity of the languages spoken by the six language groups of the Rukai (Paul 1997). The Wanshan tribe has two aristocratic families: Ladulua-U and Tarulunga-U and each of them govern their own subordinate families. Rukai ethnic group have rich ethnographic accounts on the dynamic interactions between the materiality and the sociality of the wood carving, pottery, providing a more flexible framework for us to approach the study of rock art and their prehistoric beliefs that will assist us to construct well-grounded interpretations.

In the mythological structure of Rukai, the cottonmouth snake is personalized as Rukai's ancestor, patron saint and husband/wife. In some



myths, Rukai's ancestor was born from the eggs of the cottonmouth snake. As the most important decoration subject in Rukai, the cottonmouth snake is often carved on rock art, pottery pots (Fig.9), wood carvings and cacevakan. The Rukai treated the cottonmouth snake as amascot and with great kindness and reverence. Pottery pots are regarded as sacred objects and ancestral dwellings by Rukai, and can only be possessed by the chiefs or aristocratic families. The pottery pots are personified to become a symbol of ancestor worship and have gender distinctions. The male pot is decorated with the pattern of a snake and human figure, while the female pot has raised nails, concave grooves and sun stripe on the body. The yin-yang pot has both the male and female characteristics. This close association between anthropomorphic motifs and ancestral worship is also considered in the studies of prehistoric Austronesian-speaking societies. For example, the South Pacific Lapita society's pottery vessels were carved with anthropomorphic motifs. "Four-side ancestral spiritual pillars" (Fig.10) are the side pillars of the house of chiefs of the Jiaping tribe (佳平部落) of Paiwan. According to the tribal lore and the memory of the chief, these pillars are believed to be the standing sculptures of the founding female ancestor "Muakaikai". Around the pillars are carved with images of the female ancestors of the similarity shape. These statues, standing upright, are raising their hands with six fingers parallel to their chests; their wrists are twined with several circles of parallel patterns; their waists are wrapped with straps; and their eyebrows are connected

with their noses. Although the "Four-side ancestral spiritual pillars" have been protected by the cultural relics department, Jiaping tribe still regards her as the incarnation of their ancestor and regularly holds worship ceremonies. They are all decorated with squatting human figures, combinations of human faces and snakes and zigzag patterns (on the snake bodies). In the social structure of the aborigines, it is a symbol of privilege to have these wood carvings which are exclusive to the aristocratic families. Both the pottery pots and the wood carvings are conveying a strong concept of family and the consciousness of ancestor worship. In Lévi-Strauss' original conception, house societies sometimes emerge as a transitional phase in the evolution of complex societies, when competition for social rank weakens social ties based on shared unilineal descent. The house provides a way to "solidify" the "unstable relation of alliance (Lévi-Strauss 1987:155-159). In the Vataan Amis society, for example, the twelve posts inside ancestral houses were carved with anthropomorphic designs. All of the images carved on the posts portrayed family ancestors, harvest gods, or historical heroic figures. Physical object related to the ancestors can also represent an "inalienable possession." This possession can affirm rank, authority, power, and even divine rule because it can represent a group's historical or mythical origins (Weiner 1992:51). This structure and symbol are the same as Rukai, Taiwan aboriginal society.

The "wood carving of rubbings" (Fig.11) is 76.0cm long and 21.0cm wide. It was facsimiled and reproduced with the wood carvings collected by the ethnologist Ren Xianmin (任先民) in Danan Village (大南村), Peinan Township (卑南乡), Taidong County in 1956. The "wood carving of Needle plate" Figure 12 was collected by the ethnologist Li Yiyuan (李亦园) in Laiyi Village (来义乡), Pingtung County in January 1956. These are typical wood carvings of the aborigines in the southern Taiwan. Wooden Mortar=Fig.13= is the traditional daily necessities of Rukai people for agricultural production. The surface of Wooden Mortar was decorated with human face and snake pattern. One of the typical features of these aboriginal arts is the coexistence of human face and snake pattern. This is because the Rukai and Paiwan aborigines adore snake and snakes are regarded as their ancestors. The snake, human face and human figure patterns common



Figure 9. Snake ornamentation on the old pottery pot (Shung Ye Museum of Formosan Aborigines).



Figure 10. Four-side ancestral spiritual pillars (Source: Ministry of Culture, Taiwan).



Figure 11. Wood carving of rubbings (Source: The Institute of Ethnology, Academia Sinica).



Figure 12. Wood carving of Needle plate (Museum of the Institute of Ethnology, Academia Sinica).



Figure 13. Wooden Mortar (木臼) (Shung Ye Museum of Formosan Aborigines).

in the Rukai tribe show strong hierarchy and symbolic meanings of rights. These images are also the main images found in Wanshan rock art. According to the primary environment and cultural background of Wanshan rock art, the interpretation of Wanshan rock art should be based on the cultural beliefs, ceremony and custom, and sacrifices of the aborigines in the mountains of southern Taiwan, such as the Rukai, Paiwan and Peinan people. The images of Wanshan rock art are in line with the images on the existing wood carvings, ancient pottery and other artifacts found in the area. Although it remains ambiguous whether the images on the existing wood carvings, ancient pottery and other artifacts are earlier than the rock art, the symbolic meaning can be basically learned through the existing artifacts, oral legends, and tales of the origins. The aristocratic of the Rukai and Paiwan tribe possessed sacred status of tribe management over the civilian as well as monopoly rights in economy and symbolic decoration. The aristocratic had more types of property than civilians, including land, hunting areas, rivers, and some symbolic decorations and objects. For the above privileges, the people of the tribes were not allowed to break the rules without the permission of the ruler. Otherwise, they would be punished or sanctioned by public opinion. The aristocratic was born with economic advantages. They could possess and accumulate wealth by virtue of their power without paying labor. They explained the holy ties of blood between their ancestors and cottonmouth snake, ceramic pot, as a result they consequently monopolized the privilege of using symbols and images. Contemporary aboriginal knowledge, ritual practices, oral history structural analysis and ethnographical records research all suggest that pottery pot, wood carving appear to play an important role in organizing the social, ritual, political and economic life of Rukai people. Meanwhile, they have some stronger Austronesian style. The Wanshan rock art is the material and spiritual heritage of the aborigines living in the high mountains of southern Taiwan. Human faces and figures embody ancestor worship. Snake patterns are closely related to creation myths, snake worship and ancestor worship.



Swirl patterns, concentric circles, and zigzag patterns may be the abstract variant of the cottonmouth snake pattern. The ethnographic evidence for cupules has not been found in the existing rituals and sacrifices, but cupule is a common image in rock art as well as a cultural symbol shared by the early ancestors. The Wanshan rock art may be the product of ethnic ceremony activities. The creation rights and sacrificial rights of rock art can be used to distinguish the “self” from the “other”. Tribe leaders enhanced their leadership via sacrifice, endowed their orthodox status, and improved the cultural identity and cohesion at the same time.

Archaeological analysis of Wanshan rock art

Archaeology in Taiwan was set up during the reign of the Japanese colonists when Japanese archaeologists conducted excavations in Taiwan. The Chihshanyen Site (芝山岩遺址), namely the first site in Taiwan, was discovered in 1896, the second year after the colonial rule. Yuanshan Site (圓山遺址) was found in 1897, but archaeological excavations has always focused on the Taipei Basin and surrounding mountainous areas. Japanese archaeologists have not yet extended their research field to the Wanshan rock art and surrounding areas in Maolin District, Kaohsiung, a city in southeastern Taiwan. Since southeastern Taiwan is a typical high-mountain settlement area, Japanese anthropologists Kanori Ino, Torii Ryuzo, Utsurikawa Nenoza and others have carried out a large number of field investigations, leaving valuable ethnographic materials. Large-scale archaeological excavations in southeastern Taiwan began with the excavation of the Peinan site (卑南遺址) in the 1980s, which is the typical site of the Peinan culture. After that, the Taiwan government successively excavated the sites on the east coast of Taiwan and the East Rift Valley (花东纵谷) (the topographical landscape of the East Rift Valley in Taiwan, sandwiched between the Central Mountain Range and the Coastal Range, is named because it straddles Hualien and Taitung counties), as well as the Nanke site (南科遺址) in Tainan. The archaeological

excavations and research results of sites in southeastern Taiwan outlines the framework of prehistoric culture for the interpretation of Wanshan Rock Art. Synthesizing the abundant ethnographic materials in this area, it has formed a complete time-space chain from prehistoric archaeology to ethnographic materials to contemporary aboriginal belief and art.

Most Taiwanese archaeological researchers have focused on establishing a cultural-historical framework based on artifact typologies. In such studies, archaeological features and artifacts are viewed as markers of specific cultural entities or as evidence of population migrations or intergroup exchanges (Chih-Hua 2015:152-153). In Neolithic Taiwan, jade was commonly used to produce certain tools and ornaments, some were also utilized as grave goods, “Zoo-anthropomorphic object of nephrit earrings” found in Peinan site, (Fig.14) have 70mm high, 40mm wide, 4.5mm thick, 15.7g in weight, were created about 2300-3500 years ago. This kind of nephrit earrings have also been unearthed at Chihshanyen Site, Sanbaobei site (三宝碑遺址) and Chula site (on the Dashe Village Sandimen Township, Pingtung County) in Taiwan. There is an animal on the top of the Squat figures connecting the two figures. Such pattern is still very common in the existing ethnic archaeological materials of the aborigines, including the wood carvings and the handles of bronze knives by the aborigines. According to Chih-Hua Chiang research, using rich ethnographic cases in Taiwan, it is suggested that jade zoo-anthropomorphic objects may represent an ancestral symbol, and the person who inherited the ancestral symbols may also control the local resources (Chih-Hua 2015:151). There are rich and exquisite jade articles inside the slab graves of Peinan site, including jade earrings, jade tubes, jade spears, horn-type jade rings. These jade articles not only show strong Austronesian style, but also share some similarities with jade articles, remaining of rock art and aboriginal art unearthed in Yunnan and Guangxi Province, the southwest region of China.

Regarding the follow-up evolution and development of the Peinan Culture, the Peinan Site directly influenced and shaped the “Sanhe Culture” (三和文化) and “Beiyeculture” (北叶文化). From the Peinan culture to the reign of Japanese colonists, the Rukai and Paiwan tribes in southeastern Taiwan still inherit the cultural characteristics of “indoor burial” in the Peinan culture, suggesting that the cultural heritage of this region is continuous during this period of time. There are two important sites of “Sanhe Culture”, namely the Chin lun site (金仑遺址) and Chiu Hsiang Lan site (旧香兰遺址) on the Taimali coast (太麻里海岸). A large number of pottery shards with human face patterns and snake patterns were unearthed at these two sites. There was also humanoid patterns, string patterns, triangle patterns, circle patterns, colorful bead patterns, z-shaped patterns, trapezoid patterns, monkey-face patterns, coiling-serpent patterns and cross pattern. The human face, human figure and snake pattern in Wanshan rock art are very similar to the style of Sanhe culture. Located at Chiu Hsiang Lan, Taimali Township, Taitung County, the south bank of the South Taimali River, the Chiu Hsiang Lan site covers an area of about 20 hectares, 8 meters underground, which is 50 meters from the sea. It would be submerged by water in the event of grand tide. The Chin lun site is 6 kilometers south of the Chiu Hsiang Lan site and on the north side of the mouth of the Chin lun River. The duration of Chiu



Figure 14. Zoo-anthropomorphic object of nephrit earrings (Source: National Museum of Prehistory).

Hsiang Lan site was 2150BP-1063BP while the Chin lun site existed in 1820BP-1410BP. In other words, when the Chin lun site existed, it was a settlement near the Chiu Hsiang Lan site. The residents could travel by land and water easily. Same material and culture as well as close distance demonstrate that the residents are most likely to be the neighboring tribes of the same ethnic group (Mei-Chen 2017:41).

The face shapes in Figure 15 and those in Figure 3 and 4 basically belong to the image styles generated under the same culture; this kind of image is widely distributed in the wood curving (Fig.16) and other material cultures by the Rukai, Paiwan, Puyuma, Bunun peoples living in the southern foot of the Central Mountain

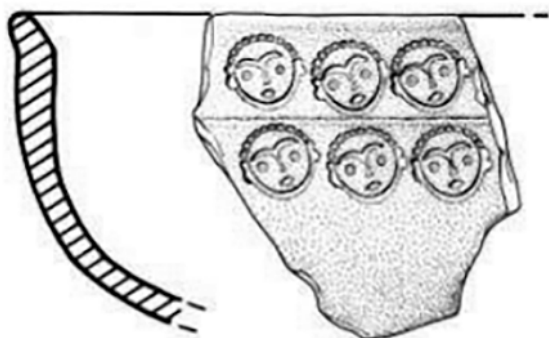


Figure 15. Pottery shards of Chin lun site (Mei-Chen 2020:40).

Range nowadays. Professor Kun-Hsiu Lee (李修坤), an unearther at the Chiu Hsiang Lan site, believes that “the features of the uneartherd slab graves, stone artifacts and pottery at the Chiu Hsiang Lan site fully show that this site has inherited the blood of the Peinan culture in the Neolithic Age, while elements including cottonmouth snakes, chamilia beads, bronze ware highlight their direct connection with aboriginal culture. Therefore, the Chiu Hsiang Lan site undoubtedly exactly fills the gap between prehistoric culture and the aboriginal culture” (Kun-Hsiu 2006:42). This also shows that the related images in the Wanshan rock art are inherited from Peinan culture to Sanhe culture then to the existing aboriginal culture, and the meaning behind the images is also rooted in the culture. The Beiyeculture is distributed in the Maolin District, Kaohsiung and the mountainous areas in central and northern Pingtung. It is geographically closer to Wanshan Rock Art. However, only pottery and farming tools have been uneartherd due to the limited data of the Beiyeculture, thus it is hard to expand the analysis. In the ethnic identification of the aborigines in Taiwan, the Rukai and Puyuma were once branches of the Paiwan ethnic group, thus their beliefs and material cultures were rather similar. Ethnic identification began during the reign of the Japanese colonists. Before that, there were only different tribes in this area. Nevertheless, based on the analysis on the similarities in terms of archaeological sites and aboriginal culture, there were extensive exchanges and communications between tribes, but there was no



Figure 16. Wood carving of rubbings (Source: The Institute of Ethnology, Academia Sinica).



clear distinction between tribes. Therefore, from my perspective, it is feasible to construct the temporal and spatial background of the Wanshan rock art based on the archaeological and ethnographic data of this region in spite of the contemporary ethnic identification. The main body of the Wanshan rock art was created from the Neolithic Age to the Iron Age, that is, from the Peinan Culture, Chi-lin Culture to Sanhe Culture and Beiyeculture. Among them, the Peinan Site, the Chiu Hsiang Lan site, the Chin lun site, and the Jiu Wanshan site (旧万山遗址) are the main cultural backgrounds for the creation of Wanshan Rock Art. The social structure and spiritual beliefs of the sites have shaped the Wanshan Rock Art. Until modern times, the aborigines still performed ceremony activities and creations around the rock art sites. The Wanshan Rock Art is consistent with the Austronesian rock art in terms of style and characteristics. But from the perspective of a broader, it is also closely related to the eastern coast of mainland China to a certain extent. The coexistence of rock art and megaliths is quite common in the Austronesian and many parts of the world. However, rock art co-existed with slab graves, straight limbs burial form, covered the face with a red terra-cotta bowl, the tooth extraction are characteristic shared by the Jiangjunya rock art (将军崖岩画) on the southeast coast of mainland China and the Wanshan rock art in Taiwan. The cultural similarity also leads to the similarity between the Jiangjunya rock art and the Wanshan rock art regarding the form (human face and cupules) and style.

The shortest distance with Wanshan rock art is Peinan archaeological site that most intact Neolithic village with stone slate Burial complexes in Taiwan. It

is located in southeastern Taiwan in the southeastern foothills of Peinan Mountain and on the terrace of the Peinan River. The entire area hosts recent alluvial sediments. Carbon-14 dating shows that the Peinan site (Fig.17) is approximately 2300 to 5300 years old. The earliest records of the Peinan site are from Ryuzo Torii, a Japanese anthropologist, according the record there were numerous slate pillars erected on the ground surface at the 1890s, up to now a lot of slate pillars at the west coast of Taiwan Island (East Rift Valley) that may be connected with megalithic culture of Pacific Rim. In 1980, more than 1500 slab graves and over 20,000 stone and pottery artifacts were unearthed during excavation at the Peinan site. In terms of burial style, it is mainly "upright body and straight limb burial" with the head facing south (Lien 2000:627). There were 46 human bones in the site with tooth extraction customs (also called "tooth mutilation" in Taiwan), most of which had removed lateral incisors or canines (Hung-Lin 2010:5-7), there were also some slab graves in which the heads of the remains are covered with clay pots. (You 1987:79) Similarly, an important discovery that Jiangjunya rock art at the east coast of China, Dayishan stone slate Burial (大伊山石棺墓) (Fig.18), (30 km away) is the site of Neolithic Age of Qingliangang culture (青莲岗文化) type about 6,500 years ago. In the site of Dayishan, similarly, "upright body and straight limb burial" was the main method, and the remains had tooth extraction customs. There are 17 tomb owners' faces covered with a red terra-cotta bowl, 6 of which have engraved symbols at the bottom. According to the archaeological data, the main temporal and spatial location of burial customs of covering the face with red terra-cotta bowl in eastern



Figure 17. Slab graves of Peinan site.



Figure 18. Slab graves of Dayishan site.



Figure 19. Moon-shaped stone pillar at Peinan Site (Source: Kano 1896).

China is mainly in Northern Huaihe Area, Eastern Jianghuai, Taihu Lake area and Danxi drainage area in Southwest Henan Province 6500-5900 years ago. In mainland China, covered the face with a red Terracotta bowl, the tooth extraction customs also existed from Qingliangang culture to Dawenkou culture. The patterns of Jiangjunya rock art are mainly mask, cupules, rice image, and checked designs. The relationship between Jiangjunya rock art and the Wanshan rock art is not yet firmly established, but they are both important sites for Pacific Rim human face rock art. There are some similarities between the Peinan site and Dayishan site, and the two sites may have been influenced by similar cultures. According to my analysis, this does not mean that Wanshan rock art is entirely of Chinese origin, to a large extent influenced and similar cultural characteristics in eastern China may provide a window on the ideology that has homologous origins,

perhaps with the ethnic culture in Taiwan and South Island influenced by prehistory in the southeastern coastal areas of China.

Rock Art with Megalithic Culture have Synchronic and Common Region

Located at the intersection of land and ocean civilizations, Taiwan is often considered to be the origin and the northernmost point of the Austronesian group. Rock art co-existing with megaliths is common in mainland China, the Korean Peninsula, Japan, Taiwan, and the Austronesian region, and is particularly obvious in Taiwan. In 1929, Tadao Kano called the area with megalithic sites in the eastern Taiwan the "megalithic cultural circle". The so-called Chi lin Culture (麒麟文化) and the Peinan Culture today is also in this area. The rock art and megaliths show synchrony and communality, and there is some relevance among the images. "Peinan Culture" is a culture in the middle of the Neolithic period in eastern Taiwan. Its distribution roughly covered the Taitung Plain, the southern section of the East Rift Valley and the southern section of the eastern coastline. The Peinan site was a large-scale settlement with a well-organized social structure. The people who lived there made their living by farming. Although it was closer to the sea, the few fishing gear unearthed suggest that people there did not make a living by fishing. "Chi lin culture" is a culture in the late Neolithic period in eastern Taiwan, and it is also the archeological culture in which megaliths are most extensively distributed in Taiwan. About 3500-2000 years ago, it was mainly distributed in the eastern coast between Xinshe (新社) in Hualien County and Dulan in Taitung County. During this period, people lived on agriculture, planted cereals by burning mountains. The aborigines living in this area mainly include the Paiwan, Rukai, and Amis.

The moon-shaped stone pillar (Fig.19) at the Peinan Site is about 4 meters high, created about 3000 years ago. The stone pillar was oriented at the north-northeast 30° and they were made of slate. As the Peinan Site did not produce slate locally, it was quarried from the Central Mountain Range in most cases, namely the area with the Wanshan rock art.

As shown in the above picture (Fig.20), rock coffin excavated from Changguang Site (长光遗址) that carved on a huge rock. The coffin is 177cm



Figure 20. Rock coffin, excavated from Changguang Site (National Museum of Prehistory).

long and 45-60cm wide. It can accommodate a person. There is a hole in the corner below the slate coffin to communicate with the outside world. Since no bones or burial objects were found in the coffin, it has not been confirmed whether it is a coffin. Nearby, the Pai-shou-lian site (白守蓮遺址) located in the northwest of Sanxiantai Scenic Area (三仙台景区) in Chenggong Town (成功鎮), Taitung County is the earliest reported Chi-lin site and the site with the most slab graves in Taiwan. It was reported by Japanese scholar Rongji Sayama in 1914 that there were two slab graves here. More slab graves, monoliths and stone wheels have been discovered afterwards. According to the ethnographic surveys, this area is mainly the settlement area of Amis. In the past, the Amis would knock a piece of the slate coffin as a tool for praying for rain. The images of the Wanshan rock art are all located on big stone in the mountains. Most megaliths are close to streams or canyons. The images of the rock art have a strong sense of megalithic culture or megalith worship. The buffer zone in the foothills of the Central Mountain Range where the Wanshan rock art is located is the main distribution site of Taiwan megalithic sites. There is a huge stone called "Dulai" (Wanshan language) in the old Wanshan tribe where the Wanshan rock art is located. It was considered by the Wanshan tribe as a sacred stone and the guardian stone of the tribe. Villagers worshiped the stone with millet every year when it was harvested. They usually used clay pots filled with newly harvested millet to worship the sacred stone. At the same time, the wizards predicted the harvest in the next year during

the sacrifice process. No plausible use other than a religious one can be assigned to the shouldered stones, the slotted stones, or the stone rings. Perhaps they represent a localized religious cult. Wanshan rock art is made in this situation and also represent this area's megalithic culture.

Austronesian spread and Wanshan rock art's original

Austronesian was the world's most widely dispersed language family, extending more than halfway around the globe from Madagascar to Easter Island. Austronesian's origin and spread are extremely complicated, despite decades of debate there is as yet no consensus on either the geographic origins of the Austronesian expansion or the social mechanisms that led to the adoption of Austronesian language and cultural traits by so many societies across the Pacific (Lansing 2011:262). Focus on rock art that located Austronesian region have a lot of common characteristic that on the basis of similarly ecological environment, social structure, living practice and belief. Austronesian rock art had a coherence in terms of motif range and location, consisting generally of curvilinear geometric forms including spirals, concentric circles, face-like forms, and various other concentric forms on boulders close to water courses or the sea, and in Austronesian language areas (Specht 1979: 74). This style of art has become known as the 'Austronesian engraving style' (Wilson 2002: 46; O'Connor 2015:193).

Both the "cirrus cloud pattern" (Fig.21) of the Wanshan rock art in Taiwan in the Austronesian region and images of "Teprtzingo-coatepe" (Fig.22) rock art in Mexico show typical Austronesian characteristics and some similarities. The "cirrus cloud pattern" of the Wanshan rock art is very common in the embroidery, wood carving and other arts by the Rukai and other aborigines in Taiwan, a pattern that is universal in Taiwan. It is interpreted as a variant of snake pattern or "flowing water wave" from the ethnological perspective. Unfortunately, the "Teprtzingo-coatepe" rock art in Mexico has been destroyed due to urban expansion, and it no longer exists, with only images available. What's worse, relevant research materials have not been found either. However, the similarity in the image style of the two rock art sites across the Pacific Ocean is worthy of attention. Squat figures, human faces, snake patterns and other common images in the Wanshan rock art and artifacts by aborigines in Taiwan are also very common in the artifacts by the aborigines in the Southeast Asia, the Pacific Islands, Australia, and the west coast of South America. For example, the wood carvings and bark paintings by the aborigines in Australia also have these well-remained artistic styles. This is not only related to the shaping of ocean culture, but also related to the cultural dissemination of the Austronesian language family. There are many arguments on the spread and origins of Austronesian culture. From the perspective of the relationship between the mainland and Taiwan, the Austronesian factors of Taiwan may partly originate from the mainland of China. "Located on the land bridge between mainland China and the Pacific Ocean, Taiwan might connect with the Austronesian islands regarding prehistoric culture. In addition, Taiwan possesses the complication of the Austronesian language. The ancestors of the Austronesian group may live in the north coast of the South China Sea between southern Fujian and northern Vietnam. They may cross the South China Sea



Figure 21. "Cirrus Cloud Pattern" of Kopaca'e (Source: Ministry of Culture, Taiwan).



Figure 22. Slab graves of Peinan site.



to South East Asian islands like the Philippines not by one route but by multiple routes due to complex motives and factors" (Chih-Hua 2012:87). In short, it is likely that the Austronesian culture in Southeast Asia and Taiwan all originate from the mainland China. From a genetic perspective, according to the Max Planck Institute for Evolutionary Anthropology, the study combines ancient DNA analysis of the related skeletons (Liang Island Homo) with the complete mtDNA genome sequence of 550 individuals including eight indigenous (Taiwan Plateau) groups to investigate the origins of Neolithic Taiwan settlement and South Island expansion (Albert 2014:426). The radiocarbon dates of the shells and charcoal from the layers above the Liangdao Man range from 7,500 to 7,900 years ago (ya), verifying to be the earliest stage of burial of the shell mound. Thus, the age and location of the Liangdao people provide a suitable time and place, which may provide insights into the early expansion of the South Island archipelago into Taiwan and its genetic link to southern China (Albert 2014:426). In addition, due to climate change, the sea level in the Taiwan Strait is about three meters lower than today, a canoe or at least a raft was required to reach the Taiwan Island. We can postulate that pre-Austronesian split apart from Austroasiatics in the southeast coast of China about 6,000 BP and dispersed to Taiwan to become proto-Austronesians (Paul 2015). Peter Bellwood regard central and eastern China as one single centre for the early development of Asian monsoon agriculture (Peter 2004:103). The inhabitants of Hemudu and other contemporary Chinese agricultural settlements lived during an episode of cultural evolution which was ultimately to have repercussions over the whole of temperate and tropical eastern Asia and the Pacific. One of these repercussions, though the first momentum was formed more than a thousand kilometers or more south of Hemudu, was the ultimately-phenomenal expansion of language speakers of Austronesian languages (Bellwood 2004:105). As far as my concerned, there is a strong level of similarity across the Austronesian rock art widely distributed in the Pacific Ocean as well as wood carving, embroidery, bark painting and other arts from the perspective of style. The Austronesian are homogenous in terms of culture, living habits, and religious beliefs. In the Austronesian cultural circle, culture may have multiple origins and spread to multiple aspects. It is rather difficult to define where the true Austronesian origin is. However, in a relatively small area like the east and west sides of the Taiwan Strait, it is determined that the Austronesian culture was spread from the mainland China on the west coast of the Strait to Taiwan Island on the other side according to archaeology, ancient genetics. The style of Taiwan Island, especially the southeastern coast of Taiwan, has also been influenced by Luzon Island and the Philippine Islands. This can be verified based on the ceramics found in the Chiu Hsiang Lan site, the Chin lun site. The high mobility and information exchange of the Austronesian culture leads to the high similarity of cultural traits of the Pan Pacific. Austronesian style rock art is an important symbol of the Austronesian culture. Both the rock image of the rock and its coexistence with the megaliths reveal the common cultural genes of the prehistoric South Island Circle. According to the historical cultural background, Anshan Rock Art is influenced by the rock art style of mainland China, but also mixed with a stronger Austronesian style.

Wanshan rock art's protection and dilemma

Now, Wanshan rock art was faced with severe challenges in protection and the reasons are as follows. Firstly, it is due to the unstable rock structure. Wanshan rock art are located in the West of the Central Mountain Range where typhoons and earthquakes that will cause debris flows, rocks falling and landslides frequently occur. Because, for one thing, the Central Mountain Range is made of tertiary sub-metamorphic rocks that are mainly composed of hard shale, slate, phyllite and sandstone; Secondly, the main rock masses of Tsubulili, Sanaginaeh and Takalravoe rock art are all located on the edge of cliffs facing ravines; at present, due to the lack of reinforcement measures, they are threatened by the danger of rocks sliding and collapsing at any time. Thirdly, rock art carved into soft volcanic rock that weathers rapidly and the year-round humid and rainy climate has corroded the rocks' surface; meanwhile, the corrosion of the rocks' surface is accelerated by the corrosion due to fallen leaves that can't be timely cleaned and the acid substances released by the root system during the growth of lichen. Moreover, the accumulated water caused serious damage in the cupules and grooves over time. Taiwan always attaches great importance to the protection and development as well as the educational function of the heritage. For example, a heritage museum has been built in Taiwan on the same level of Wanshan rock art as the Yuan-shan (圓山遺址) and Peinan (卑南遺址) sites. However, there are great difficulties in the conservation and research of the Wanshan Rock Art. As Wanshan rock art is far away from densely populated areas, it usually takes 2-3 days to walk from the tribe to the site. Besides, limited by the climate condition, the Wanshan sites can only be expedition during the dry periods from November to next year March. The investigation route is always subject to changes due to the frequent typhoons and earthquakes that will cause debris flows, falling rocks, etc. Moreover, the four of rock art group are too dispersed. Since the discovery of the Wanshan rock art, the expedition route has been changed more than ten times. The challenges facing the protection of Wanshan rock art are the common trouble by the rock art in the Austronesian Language family and rainforest areas across the world.

Summary and conclusion

The Wanshan rock art is the cultural relics of the aborigines living in the high mountains of southeastern Taiwan for generations, and it is closely related to the cultures of the Rukai, Paiwan, and Puyuma. The Wanshan rock art is created under the influence of the southeastern coast of the mainland China and the Austronesian. The rock art and stone slate burial with straight limbs, covered the face with a red terracotta bowl, the tooth extraction customs can be found throughout the Taiwan Strait and Western Pacific.

There are abundant archaeological and ethnological materials for the research on the Wanshan Rock Art. The excavations of the Peinan site, the Chiu Hsiang Lan site, the Chin lun site and the Jiu Wanshan site in the past 30 to 40 years have established the prehistoric way of livelihood (mainly agriculture), witchcraft and belief (ancestor worship, snake worship) for the research on



the Wanshan Rock Art. These characteristics were still finding in the data of field surveys on the aborigines in Taiwan by Japanese scholars during the reign of Japanese colonists. The beliefs and the material culture (wood carvings, pottery) of the aboriginals are still descended until today. This continuity demonstrates the cultural context of the Wanshan rock art and also lays the foundation for the textual research and analysis on the Wanshan rock art.

Based on the analysis of the scale, production methods, production tools, and time-and-space background of Wanshan Rock Art, it is found that Wanshan rock art was not created at a time point, but at a longer time point. Under the impact of beliefs and rituals, the local aborigines keep inheriting and adding; nowadays the aborigine still have worship rituals to it, and they believe that it is the place where the ancestors lived. The body of Wanshan rock art may be created from the Neolithic Age to the Iron Age and even in modern times.

Rock art is a precious prehistoric cultural heritage of mankind, reflecting the ideology, religious beliefs, livelihoods and artistic aesthetics of our prehistoric ancestors, an important channel for our contemporary people to explore the prehistoric living mode of human being. The rock arts worldwide are facing the problem of protection nowadays. However, due to the different natural environment in different areas, the difficulty and way of protection are also different. Severe weathering, corrosion and falling risk make it a great challenge and urgent problem to protect the Wanshan Rock Art.

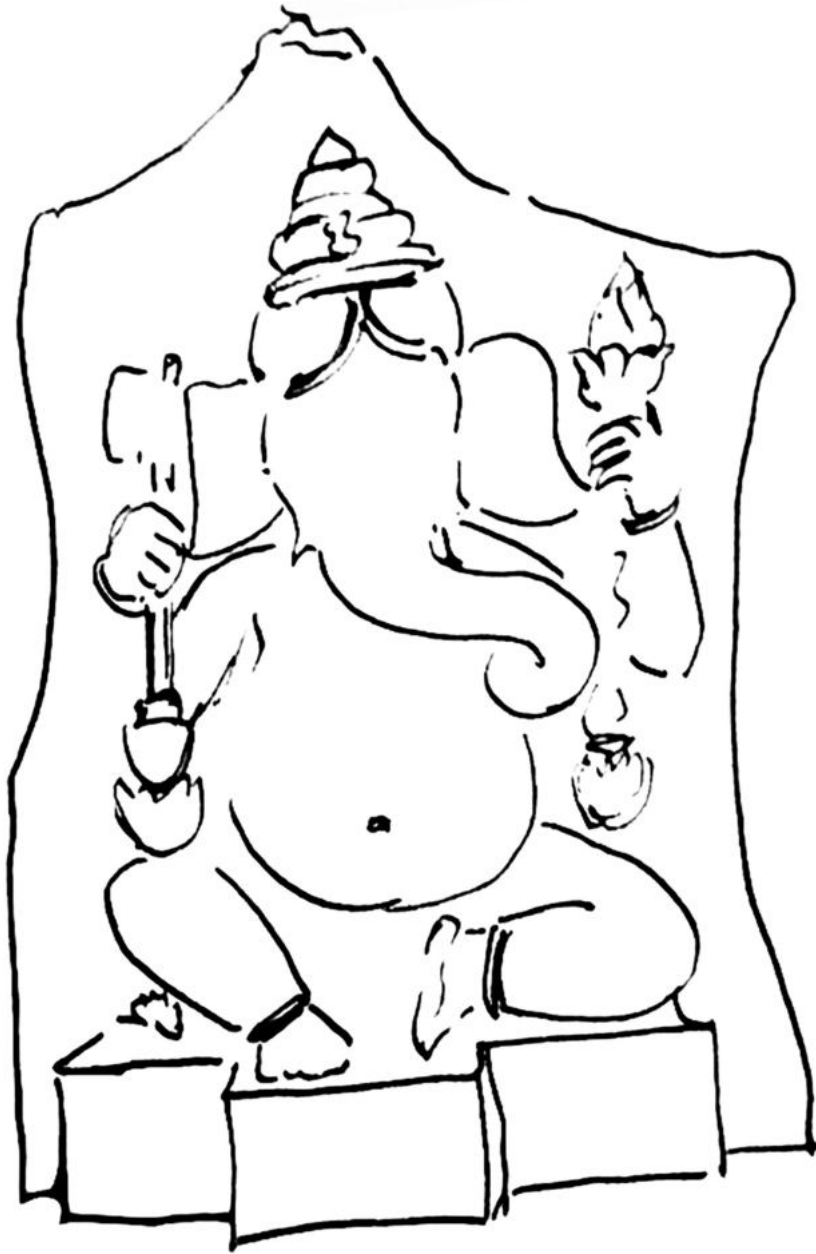
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Apunte del Dios Ganesha por el Dr. Vishnu Shridhar Wakankar.



Distributional of Rock art sites in Sonbhadra District, Uttar Pradesh, India

SWTANTRA KUMAR SINGH

Introduction

In the present work, it has been attempted to make a systematic study of rock art distribution patterns in the Sonbhadra district based on the recent field exploration, scientific documentation, and analysis of artifacts related to rock art found in the course of exploration of the region. As an output of explorations, the author visited and documented 140 painted rock shelters in this region. Out of them, only 125 painted rock shelters are located in the present political boundary of the Sonbhadra district and some of the shelters are located on the boundary of Sonbhadra. This distribution pattern is based on the important features of painted rock art shelters such as their location, subject, style, theme, utilized raw material, and other aspects of rock art sites. Plotting all the 125 painted rock shelters on the map and taking Robertsganj (Panchmukhi group of Shelters) as our core zone and total rock shelters are covered in 30 concentric circles. The annulus (the area between two concentric circles) of these concentric circles is 1 Km. Except few (Mukha Dari, Kohbarwa Ghat, and Railahawa) all the explored sites are located in these annuluses (Fig. 1). This methodological analysis indicates that locations of rock art sites are directly relative to the natural and cultural environment and it is concerning the macro-landscape. The probable association could be an example, water (water-falls, rivers running next to the rock art sites, spring, Nala, etc.), formation of natural rock shelters, variance topographic landscapes, form and shape of the rock outcrop (vertical cliff, bolder, hanging, table, rock slope, etc.), favorable location (hunters or agricultural or environment) highlands, central places in the landscape, other contemporary archaeological remains (stone tools, settlements, etc.), inter-visibility between different sites, audiovisual, landmarks, communication, rock colour, ritual places or several others aspect in this paper.

Painted rock shelter in Sonbhadra district implemented by the early inhabitants. These pictograms are archaeological records for understanding their daily life. These paintings carry a range of meanings and become an important source of information when they are related to a specific context. This research paper is a very pilot attempt at the spatial distributions of painted shelters and motifs in the Sonbhadra district. It helps us to generate approaches for viewing paintings as partial records of prehistoric settlements. This paper focused to obtain a comprehensive or representative sample of regional site distributions and an understanding of the relationship between sites as places selectively occupied by Prehistoric groups.

Study area

Sonbhadra district was carved out from the erstwhile Mirzapur district in 1989. Geographically and culturally, it is a part of the Mirzapur district (Drake-Brockman, 1991). Sonbhadra has a geographical area of 6788 sq. km. It is the second-largest district of Uttar Pradesh. It lies in the extreme south-east of the state, between the Latitudes 23° 51' 54" N to 24° 46' 18" N and Longitudes 82° 40' 24" E to 83° 33' 15" E. Bound by Mirzapur district to the north-

west, Chandauli district to the north, Kaimur and Rohtas districts of Bihar to the north-east, Garhwa district of Jharkhand state to the east, Korea and Surguja districts of Chhattisgarh state to the south, and Singrauli district of Madhya Pradesh to the west. For administrative purposes, it is divided into four Tehsils, eight blocks, and 501 Gram Panchayat in the district.

Previous work in the Sonbhadra district

Archaeological investigations were initiated in this area by J. Cockburn in the last quarter of the nineteenth century. He discovered a few painted rock shelters containing several scenes of hunting, dance, and other activities of human life (Cockburn, 1883: 56-64; 1899: 89-97). Later on, several researchers contributed to the cause throughout the twentieth century. It begins with the exploratory work of Rai Sahib Manoranjan Ghosh (Ghosh 1932: 15-20), followed by the teams of archaeologists of the Allahabad University, Banaras Hindu University, and the U.P. State Archaeology (Sharma et al. IAR 1956-57: 11 and 14; Sharma: 1980; Sharma, et al. 1983, Varma IAR 1959-60: 48; Pandeya IAR 1960-61: 67; Sharma et al. IAR 1962-63: 31-32; Narain and Pant IAR 1962-63: 33-34; Sharma et al. IAR 1963-64: 39 and 51-52; Narain and Pant 1964-65: 116-135; Sharma et al. IAR 1969-70: 35-38; Singh et al. IAR 1975-76: 56, 1977-78: 58, 1978-79: 24, 1979-80: 79; Gupta 1967; Jayaswal 1983: 127-133, Varma 1964, 1986: 206-213, 2012; Kesari, 1982, 1984; Pratap 2015; Chattopadhyay 2016: 251-270). During the last quarter of the twentieth century, explorations were undertaken by Rakesh Tewari (Tewari 1982, 1982a: 1-16, 1985, 1986: 105-112, 1986a: 25-29, 1987: 77-88, 1989: 94-106, 1990, 1992: 284-302, 2010; Tewari and Pandey 1988: 97-102; Tewari and Singh 2001: 91-104; Tewari and Singh 2002: 91-96; Tewari et al. 1995: 55-131). Later on, Vibha Tripathi and Prabhakar Upadhyay of Banaras Hindu University again explored this area to trace the antiquity of iron from the archaeological point of view.

Distribution of rock art cluster: based on their location and distance from each other's

We marked all 125 sites on the map and by taking Robertsganj (Panchmukhi Shelters) as our core center author plotted 30 concentric circles. The annulus (the region between two concentric circles of the different radii) of these concentric circles is 1 Km. except few (Mukha Dari, Kohbarwa Ghat, and Railahawa) all the explored sites are located in this area (Fig.1). This map indicates the location of rock art relative to the natural and cultural environment why painted rock shelters are located where it is concerning the macro-landscape (Fig.2).

This map (Fig.1) shows that the maximum painted rock shelters are located towards the west, south, and southeast of Robertsganj. In a few localities number of painted rock shelter construction is much higher. There are a total of seven groups or clusters are marked. Within the cluster, the number of painted rock shelters can vary. There is a clear-cut gap among these clusters. Probably prehistoric people occupied a particular area



Table 1. Name of painted rock shelters in the different clusters.

Distribution of rock art of Sonbhadra area (based on our exploration)						
CL-1	CL-2	CL-3	CL-4	CL-5	CL-6	CL-7
Subgroup's						
Panchmukhi	Kairi Pahar	Domakhri	Railahawa	Mukha Dari (Mukhafall)	Kerwa ghat	Maukhurd
Chanain Maan					Poknawghat	Ramana
Kanda Kot	ChatmaPahar	Parwania	Kohabarwa		KhodwaPahar (Matahwa)	HarnaHarni
Jharia	Sitaji ki Kohbar		Ghat II		Lakhma Pahar	Ghomanwa
Bashi Ghat	Do Muha Pahari				Hathbanwa (Hathwani)	Dharma
Sorho Ghat	Bhalui Pahari				Kanach TarGochra	Dharam Daspu
Bajarahi Pahari					Baghama	
Jhandi Pahari	Medawar				Chattra Maan	
Likhaniya (Raja Ka Baithaka)					Kauva Khoh	
					JhandhPahari	
					LalkDari (Hathi Ghora)	

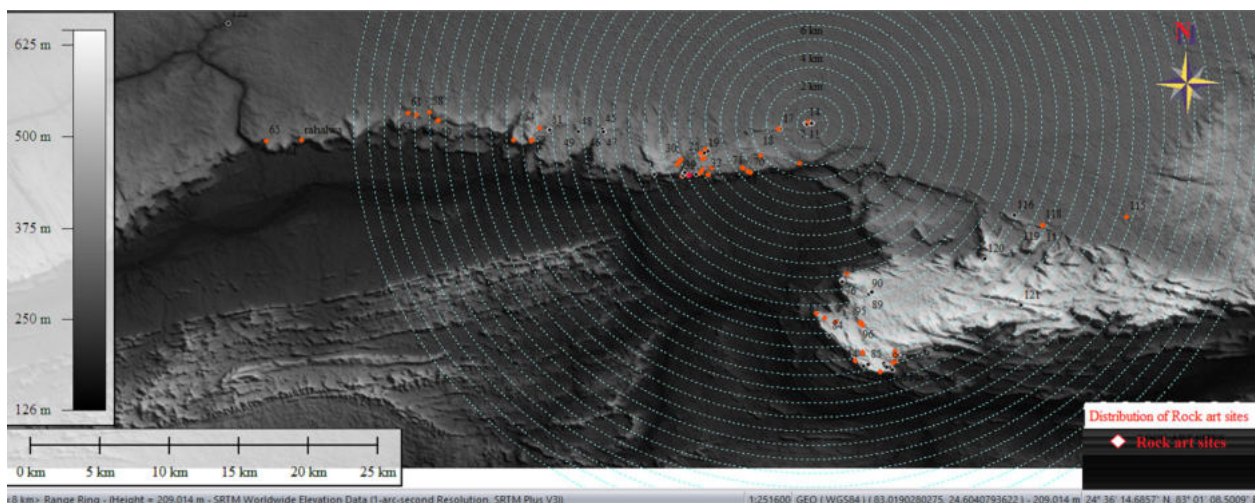


Figure 1. Showing the distribution of rock art in the study area.

in the group and marked their territory to avoid conflict with other groups. The subject of the paintings (some aquatic motifs are only found in a small area), their style, subject, and techniques are also supported the regional distributions hypothesis. This distribution pattern is based on the geographical landscape of all painted rock art sites. These seven clusters are further divided into sub-clusters for understanding the distribution on a micro level with their relationship to other archaeological remains (Table: 1, Fig.2).

Distribution of rock art sites in the different clusters

Cluster 1: Under cluster one, there are seven sub-cluster that can divide based on their location, subject, and other archaeological remains. In the Panchmukhi group, there are more than 17 painted rock shelters are

documented. In this sub-cluster rock art sites are follow the hill edges and all the early paintings are located on the north-eastern part of the hill, in shelters 1,2,5,6, and others. There are only a few stone tools found near shelters 1 and 13. Except for shelter numbers 2, 6, 8, and 13 none of the other's shelters is ideal for habitation. In other shelters, only a few person people can stand at a time. There are several others remains of the temple that belongs to the early medieval period located on the top of the hill. There are some Brahmi and Sankha Lippi inscriptions are also found. Shelters number 6, 9, 13, 14, and 15 are mostly have Sankha Lippi inscriptions, and decorative alpana motifs are depicted. Some microliths tools deposits are also found inside and near the shelters. Rhino and others some early paintings are with tools and others archaeological remains are evidence of earliest settlement probably belong to Mesolithic. This locality

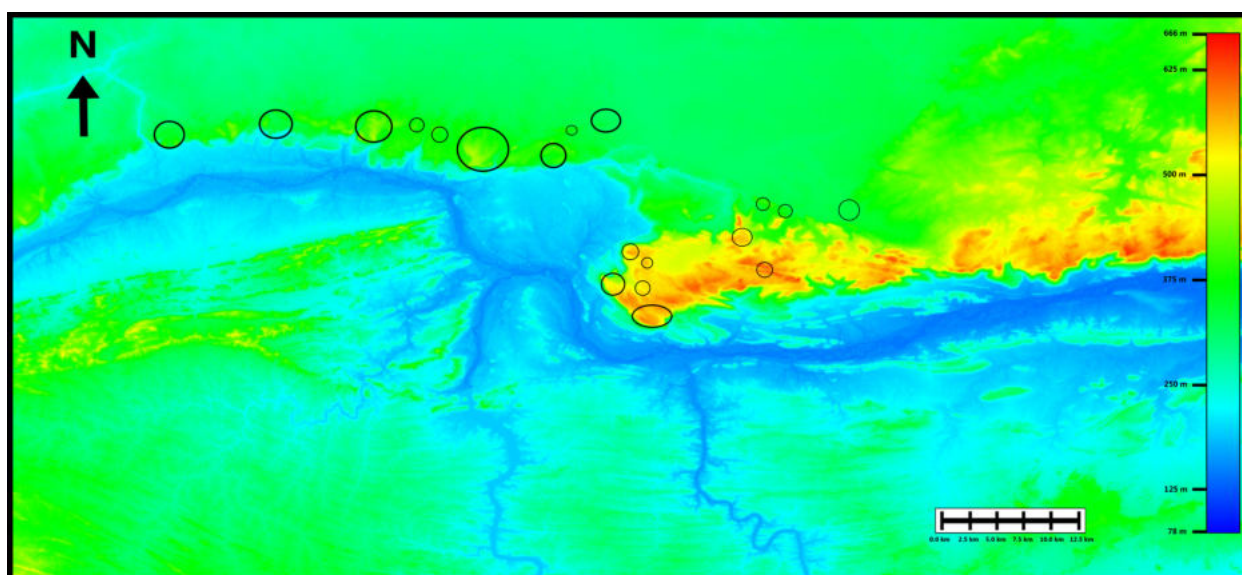


Figure 2. Showing the distribution Subcluster landscape of rock art in the study area.

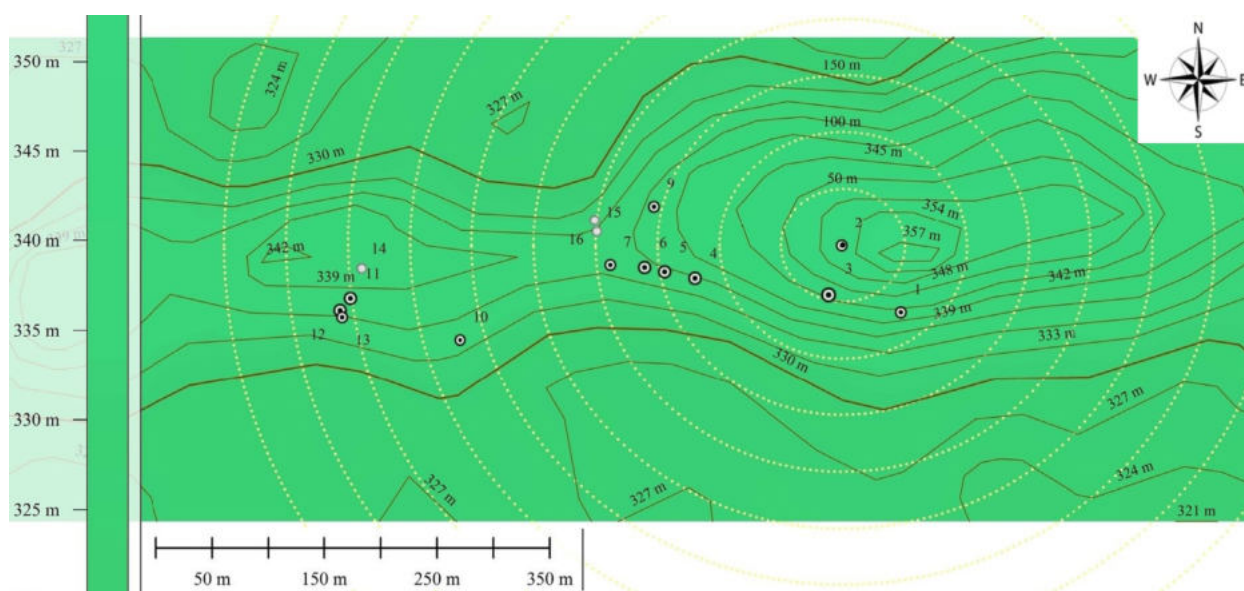


Figure 3. Distribution of painted rock shelters of Panchmukhi group Subcluster of cluster 1. The dotted line represents the 50m distance from the painted rock shelter 2 (Near the temple).

becomes a center of religious activity in the early historical period and was never pull-down (Fig.3). But after the Mesolithic, human population habitation sifted from a hilly area to flat fertile areas.

The second subcluster noticeis near the District Magistrate office locally known as Chanain Maan. It is a very large and multi-storage type shelter. Huge numbers of stone tools (more than a thousand tools and ideal for excavation in the future) are found in the front of the shelter. Probably this locality is the main habitation center of the Upper Paleolithic (Representing tools from Upper Palaeolithicare found) and Mesolithic population. Towards the South of Chanain Maan number of painted shelters is found. This locality is comparably a flat area located on the top of the hill locally known as Kanda Kot and Bahuar. This locality is not only important for a large number of painted shelters but also for Middle Palaeolithic

tools reported (IAR 1956-57: 13-14) by Prof. G. R. Sharma. This locality has some different patterns of rock art sites. Maxim's earliest settlements (painted shelters with stone tools deposits) are found on the foothill. Early historical motifs such as horses, elephant riders, war scenes, and other decorated motifs are found on the top edge of the hill. The word "Kot" itself represents a locality having fortification. Similar evidence was found during our recent exploration. Archaeological remains of fortification (mostly damaged) and a temple of early historical periods still can easily see on this hill. A similar suggestion from local folklore regarding the uncompleted fort on this hilltop is very popular. Towards the south of Kanda Kot, near the river Son, there are several small sizes painted rock shelters located on a cliff area known as Jharia having some earliest paintings of this region. This locality is also related to Kanda Kot legends. From



Jharia, Raja Ki Baithaka painted rock shelter is located towards the north-west and in between these two, there are some other very small shelters with few paintings and clusters of tools (Upper Palaeolithic to Mesolithic) are also found. Likhaniya locality is also known as Raja ki Baithaka (seating place of a king). This is the largest shelter in size and number of painted motifs in this locality. This shelter comprises paintings belonging from the Mesolithic to the Historical period (Fig. 4). This location is ideal for

habitation and hunting. From this shelter, early hunters easily command a bird's view of the area.

Cluster 2: Cluster two is located 5km North-west of Likhaniya (Raja ka Baithaka). In this group, more than 10 painted rock shelters are located within an 8 km radius (Fig. 5). This cluster is further divided into two groups. The first subcluster is a collective of Kairi Pahari and Sita Ji Ki Khobar. Illustrations of Sita Ji ki Khobar and Kairi Pathari are skillful representatives of early historical paintings.

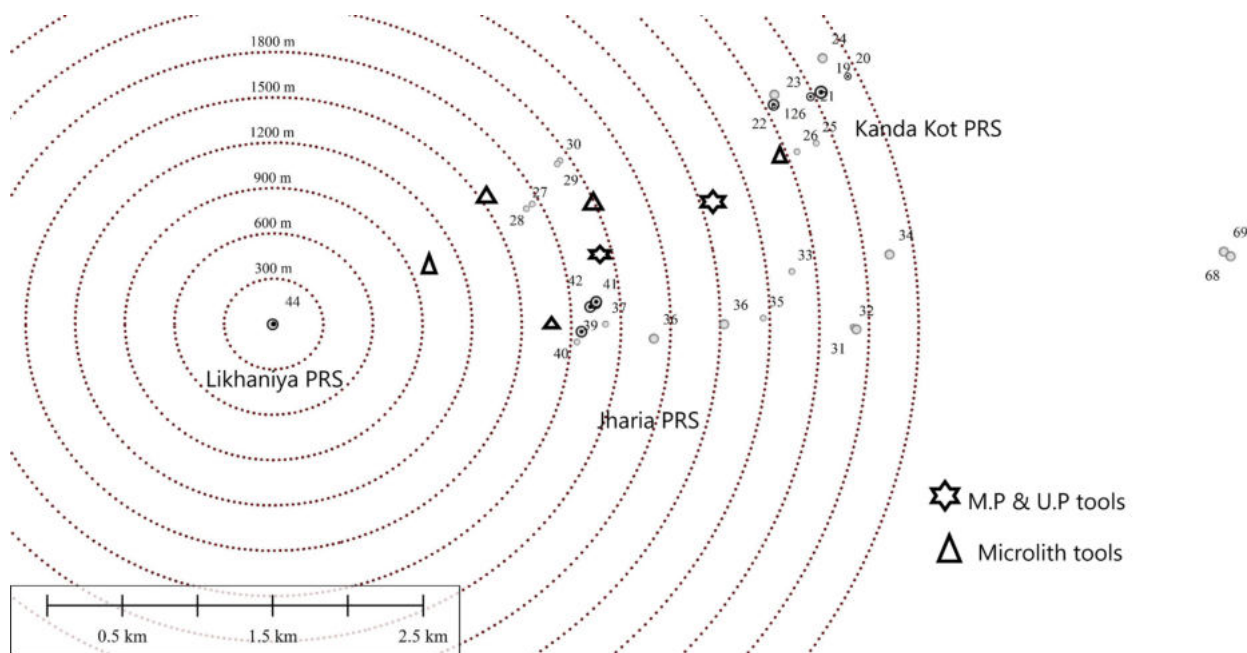


Figure 4. Distribution of painted rock shelters and other stone age sites in cluster 1., dotted line representing the 300m distance from the Likhaniya (Raja Ki Baithaka).

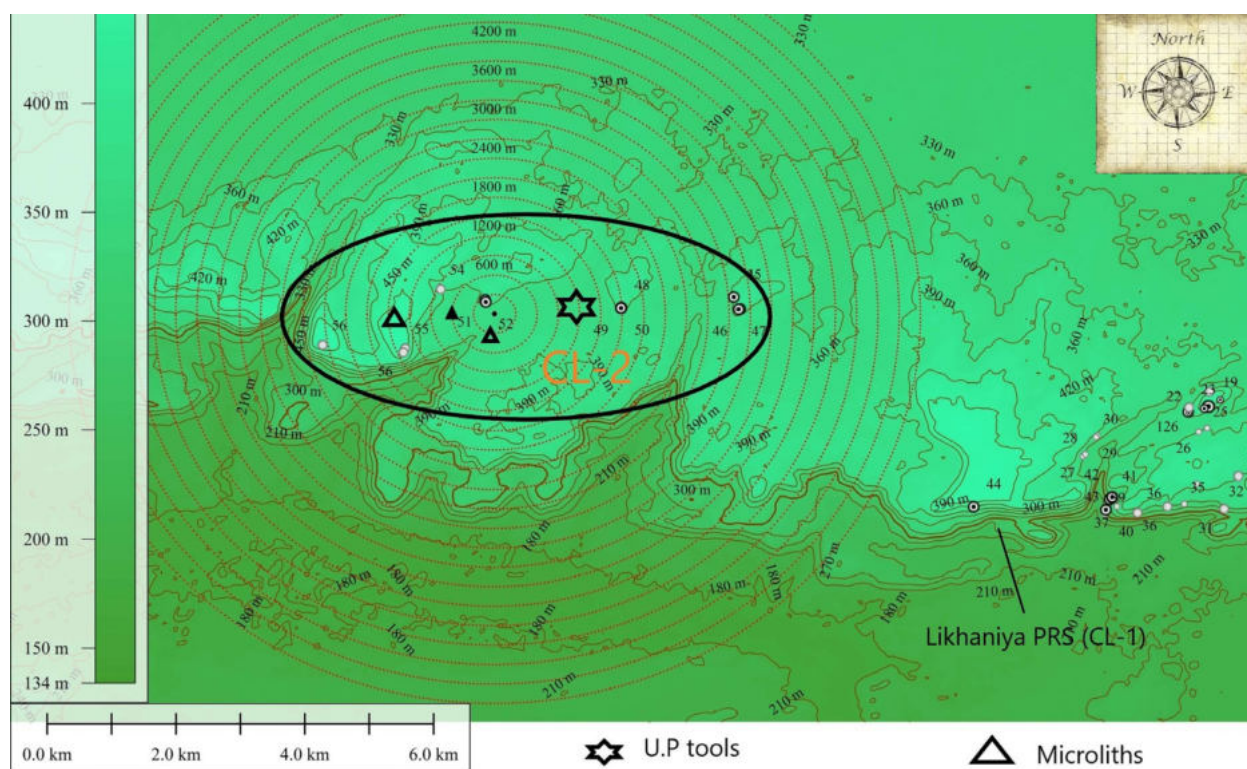


Figure 5. Map showing the distribution pattern of cluster 2 and their relationship (distance) from cluster 1.

The main theme of Sita Ji ki Kohbar is associated with elephant riders, camel riders, decorated Alpana motifs, geomaterial body shapes of humans, peacocks, warriors, and others. This shelter is also related to the folklore of Sita's marriage. In July local villagers conduct a fair festival near the shelter. Approx. 400 m South-west of this shelter there are some Upper Paleolithic tools are also reported (Swtantra 2021). Kairi Pahari's group of painted shelters subjects is slightly different from other paintings of contemporary painted shelters. There are more than 19 painted hand motifs in positive technique depicted in different parts of the shelter. It looks that possibly; the handprint belongs to the early historic period. All the painted hand motifs are very sharp edges that are the appearance of retouching work. On the other hand, painted motifs from Do Muha Pahar and Mathwa shelter are early in comparison to this group. Bhauli Pahari paintings are generally collective of both early and later periods.

Clusters 3, 4, and 5: Cluster 3 is located 8-10 km west (Ariel distance) from cluster 2. There are numerous microlithic and other stone tools instituted near the shelters but few smaller early paintings are found. War scenes and horse riders are the main subjects of the paintings (Fig.5). Cluster 4 is located near the Upper Palaeolithic and Middle Palaeolithic boundary and has some early paintings with few deposits in the shelters. On the other hand, Cluster 5 Mukha Dari is a big shelter and a large area of paintings belonging to the early Mesolithic to the early historical period (Fig.6). There are several Microlithic including core, flake, and blade are found from the different localities but no other painted shelters are found in our exploration. There is a possibility that in the future more painted rock shelter sites will be found in this locality. (Fig.1).

Cluster 6 & 7: Cluster 6 is located southeast of Robertsganj and it is the most important area to

understand the nature of rock art. This locality has the largest and most painted rock shelters located in this cluster. Maxim shelters are facing south or southwest towards river Son. Maxim painted rock shelters are located on the cliff area. The most important motifs of the cluster are aquatic motifs. Some infrequent representation of fishing, Boat, and tortoise hunting is only found in this locality. Not only do large painted shelters represent the earliest stage of paintings in this locality but also some war motifs related to folklore Lorik also painted. Maxim numbers of painted rock shelters are reported from this cluster. Cluster 7 is located near the Vijaygarh fort locality. There are several other important painted rock shelters located in this region such Mau-Kala, Ramna, Maan-Moon, Ghora-Manager, Bhutahiya, and others but the present study is limited to a few shelters only (Fig.7).

Conclusion

Early Palaeolithic and Middle Palaeolithic artifacts are limited to the river Son valley, the Southern part of the district in the Singrauli basin, and the Dudhi area. No habitation sites, related to the aforesaid phases, are known from the out of this area. It is to be noted that the sites of the Upper Palaeolithic periods are reported not only from the Son valley but extend over the Kaimur hills also. In the Upper Palaeolithic period, the human population starts expanding in the hill area of the Kaimur ranges and utilized naturally formed rock shelters for many purposes.

The location of these painted rock shelters near the perennial water bodies makes them of utmost importance from the strategic point of view as the inhabitants of these shelters could easily get water and aquatic food and games (small animals and bird). Some of these shelters might have been used in the Mesolithic period or even earlier periods as suggested by stone tools found in this



Figure 6. Painted rock panel of Mukha Dari representing the different time phases of painting in Sonbhadra District.

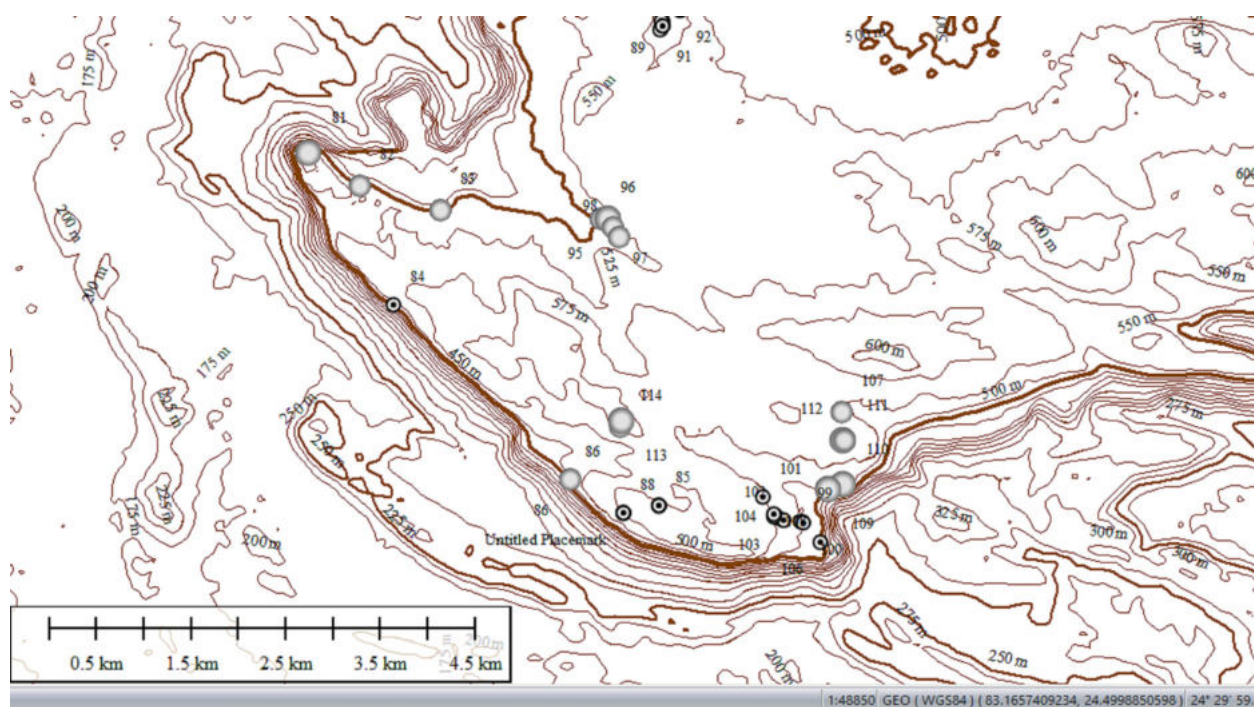


Figure 7. Distribution of painted rock shelter in clusters 6 and 7 and their distance from.

region. However, no surviving painting can be attributed earlier to the Mesolithic period. There are many reported natural rock shelters suitable for habitation, availability of a perennial source of water in the form of deep Kundas, water-falls, deep nallas, and tributaries of rivers Son and Karmnasa. Generally, the painted rock shelters are located at a proper height that provides a bird view of the area.

In our exploratory works in the Sonbhadra region for documentation of rock art sites in the last five years, the author found a good number of the shelters; both painted and unpainted, having evidence of occupational deposits. Large numbers of blade industries of the Upper Palaeolithic period and stone chips, microliths, and fluted core along with raw materials were found in the shelters. This establishes human activity in the rock shelters right from the Mesolithic period.

Generally, maximum numbers of painted rock shelters are located at a proper height of the hilly area help to oversee a large area and are probably used for visual communication. All the shelters were not occupied for habitation. Some of them might have been used as watching places just like watchtowers of the later period. Locating at the upper places of the hill, small rock shelters could give them the advantage to secure the area. It was also useful for trapping the migrating herds of animals for hunting. The author observed that most of the paintings of this region belong to early rock art with plenty of examples, and in many layers, might be more than 50%. However, most of it is in the form of traces only an author could not make out any sensible form from them.

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El Dr. Vishnu Shridhar Wakankar en sus labores de observación y registro de quilcas en la India.



Tracing the Symbols: An Ethno-Rock Art Study of the North-Eastern Chhotanagpur Plateau with special reference to Jamui region, India

SHUBHAM SAURABH, AMRITA SARKAR & DHEERAJ SHARMA

Introduction

Rock art is the creative articulation of human cognition, emotions and their past experiences. It corresponds to glimpses of the indigenous world view, aspirations and narratives on their own explained identities during the past (Chakraverty 2009). Our ancestors expressed it in the form of Pictographs and Petroglyphs, while sitting in the lap of nature. The material required for its creation was also procured from the mother nature itself. The rock art is found throughout the length and breadth of India from Zaskar Valley, Laddakh in the north to Kerala in the south and Tak Tsang and Zemithang in the north-east to Gujarat in the west (Sonawane 2008).

Rock Art is the documentary evidence of the human past which carries a slice of time and space in the form of paintings and engravings created on the rock surface. Its antiquity goes back to the Palaeolithic period (Bednarik 2005) and is continued to the historical period and still practiced in some parts of India in other art forms among the ethnic population (Tiwarly 2013).

Study area

The study area lies in the Jamui Hill Ranges (24.834245 N, 86.065004 E) located in the Jamui district of Bihar

(Fig.1). This hill range is distributed in the eastern part of Nawada and south-western part of Jamui districts of southern Bihar. Its length is 34 km in the east-west direction and spread between Khaira block of Jamui and Kauwakol block of Nawada district. The hill range lies in the toposheet number 72 L/1 of the Survey of India map. The discovered rock shelters are located near Garhi dam and Tetariya Tanr village between the Deosthan Pahar and Giddheshwar Pahar. The sites are randomly distributed among the hill ranges varying in elevation from about 240 to 354 metres.

This region lies under the northern-eastern extension of Chhotanagpur plateau. The hilly areas of the district contains crystalline rocks such as Sandstone, Mica, Schist, Granite gneiss, Quartzite & Quartz schist, Hornblende schist and Mica (District Survey Report 2016). Here the extension of Vindhya ranges meet with Chhotanagpur plateau. Apart from regular hills, big boulders of granite can be seen in the area. River Kiul flows near the hill ranges.

The climate in Jamui district is mild, and generally warm and temperate in nature. The temperature in summer rises up to 42°C, while in the winter it drops to 9°C. Jamui has an annual average temperature of 25.1°C. May is the hottest and January is the coldest month of the year. In Jamui Summer season receives

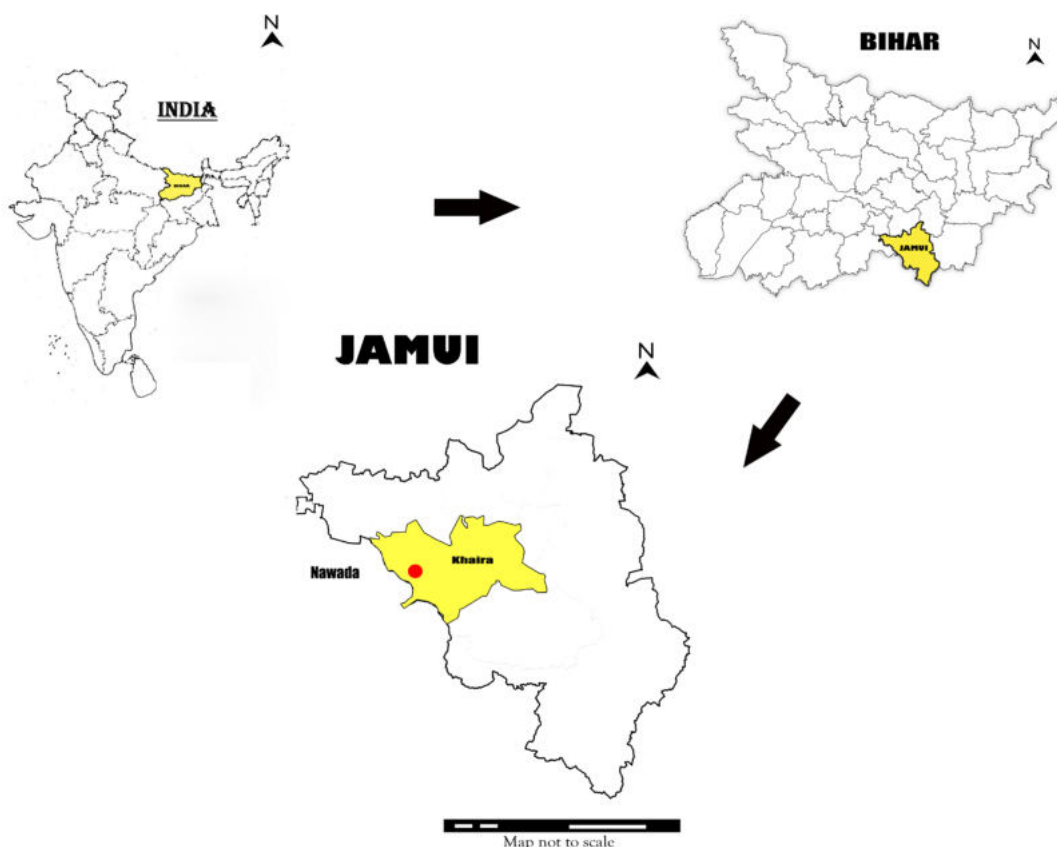


Figure 1. Location map of the study area.



more rainfall than winters. The average annual rainfall of district is 1145 mm. About 80% of the rainfall is received during June to September by south-west monsoon (Jamui District Gazetteer).

The area is hilly and densely forested. A large variety of herbs, shrubs and trees are found in the region. Some of the main varieties are ber (*Indian jujube*), sal (*Shorea robusta*), bel (*Aegle marmelos*), tendu (*Diospyros melanoxylon*), Khair (*Senegalia catechu*), Bamboo (*Bambusa tulda*), Khirni (*Mimusops hexandra*), jamun (*Eugenia jambolana*), aonla (*Emblca officinalis*), bahera (*Terminalia bellirica*), semal (*Bambaz malaberieum*), kari (*Holharrena antidysenteria*), palas (*Butea frondosa*), mahua (*Bassia latifolia*), gular (*Ficus glomeratha*), mango (*Mangifera indica*), piyar, kalonda, kaj, ken, amsahari, paisar, gamhar, ghurkunj, anjan, dhob, tarmi, shakhua, aitha, makarken, kanola, bithor, dhodhki, chhagar, ledi, bahet, khonta, ghunt, karia, karam, pampreth, kanola, behaach, kukur bhooja, wild variety of bargad etc. In addition to the wild fruits, various edible tubers, roots, seeds, leaves, flowers and wild vegetables are also available throughout the year.

Earlier, a large variety of wild animals were present in the area. With the advent of modernisation their number has tremendously decreased but still they are found in the forested areas, especially the foothills. These include wild boar, black buck (*Antelope cervicapra*), swamp deer (*Cervus duvaucelii*), jackal (*Canis aureus*), nilgai (*Boselamphus tragocamelus*), langur (*Presbytis entellus*), monkey (*Macaca fascicularis*), hyena (*Hyaena hyaena*), fox (*Vulpes bengalensis*), wild Dog (*Cuon alpinus*), rabbit (*Oryctolagus cuniculus*), hare (*Lepus nigricollis*), squirrel (*Funambulus palmarum*), mongoose (*Herpestes edwardsii*), porcupine (*Hystrix indica*) etc. A variety of birds found in the forested region include peacock (*Pavo cristatus*), owl (*Bubo bengalensis*), parrot (*Bubo bubo*), fowl (*Gallus gallus*), eagle, falcon, partridge, hawk, vulture, dove, myna, harial, sparrow etc. This area is also infested with deadly cobras, karaites, vipers, pythons and many other varieties of poisonous and non-poisonous snakes as well as scorpions.

This area has a rich archaeological history as the stone tools, microliths and debitas can be seen lying on the surface in the forest. Along with the painted rock shelters megaliths have also been reported by Col. A. K. Prasad (Prasad 2003-04). Santhals are the prominent tribe who live in the vicinity of the rock shelters.

Antecedents

The region of Chhotanagpur plateau comprising of modern states of Odisha, Jharkhand, some parts of West Bengal & Chhatisgarh and Southern part of Bihar is highly rich in natural resources and mineral wealth. The first rock art was discovered in Odisha by C. W. Anderson, a railway engineer in 1911. The site of Singhanpur, located near railway station of Nahapalli, contains paintings made in red and white (Neumayer 2016). The rock paintings of Shinghanpur were later documented by Percy Brown and published in his book *Indian Paintings* (Brown 1918) and Manoranjan Ghosh in his book *Rock Paintings and Other Antiquities of Prehistoric and Later Times* (1932). The rock art sites of Kabra Pahar and Karmagarh were discovered later, containing outlines, monochrome and polychrome designs of anionic nature. The zoomorphic figures, fishes, birds and few anthropomorphic figures were painted in red, white and bright yellow colour (Sonawane 2008).

The Vikramkhoh rock shelters in Sambhalpur district were discovered by K P Jayaswal in 1933 (Jayaswal 1933). The shelters of Hemgiri-Chenga, Hemgiri-Chichiriyakhoh, Hemgiri- Lakhmara and Hemgiri- Phuldungri Pahar contains abstract designs, squares and triangles shaped figures, figures filled with wavy or criss-cross designs as well as naturalistic figures of lizards, antelopes, birds and bovid (Neumayer 2016).

In Jharkhand, rock paintings have been discovered from Gonda, Satpahar, Tirtangi and Isko rock shelters. These rock shelters have been studied by Somnath Chakravarty (2009) and Bulu Imam (2011, 2014). The subject of paintings here includes naturalistic animal figures, abstract designs, patterns of squares and triangles, simple outlines and geometrical designs.

Although a lot of work has been done on the rock art studies in India and of Chhotanagpur plateau region, South Bihar has been an exception because of its inaccessible terrain and forests inhabited by large variety of ferocious animals and reptiles. Naxalite insurgencies have been a major hindrance for the systematic exploration. Erwin Neumayer (1983, 2016) among the very few scholars who have worked on the rock art of this region. Dr (Col.) A K Prasad has discovered the painted rock shelters in the districts of Nawada & Jamui in Bihar and Giridih & Kodarma in Jharkhand. Col. Prasad explored the region between 1993 to 1998, when he was deployed in the counter Naxalite insurgency squad of the Indian Army (Prasad 2003-04). He discovered eighty-six rock shelters containing rock paintings & petroglyphs along with microlithic tools, bone fragments and potsherds in some of them. Ten petroglyph sites have been discovered by him on open boulders in Kodarma district of Jharkhand. Apart from the documentation of the rock paintings and associated artefacts, he gives the information about the subject matter, colour scheme & techniques, superimposition and encrustation over the rock art (Prasad 2003-04, 2005-06, 2006, 2007, 2017, 2019). He has also attempted to interpret some of the paintings and ascertain their chronology (Prasad 2005-06, 2007). However, the rock paintings of this region have not been studied intensively. They must be studied along with ethnographic parallels to understand the hidden meaning. In this article, authors have tried to decode the rock paintings by comparing it with the ritualistic and totem symbols of the Santhals. Only those symbols are compared which is presently practised by the ethnic population in the study area.

Nature of the paintings

The rock paintings in the study area mainly comprise of the symbols and intricate designs. There are a small number of naturalistic paintings. The designs include combination of circles, squares, rectangles, wheel, cross, spirals, rhomboids, meandering lines, concentric circles, grids, zigzag lines, dots, combination of triangles and squares.

The stick like human figures, rectangular box with double outline with abstract designs, outline of birds like owl and duck, reticulate figures, labyrinth with seven concentric circles (Fig. 2), rider on horse, Sun symbol, floral motifs, rider on caparisoned horse holding a weapon in one hand and bridle in the other (Fig. 3), Sun with an unidentified figure (Fig. 4), hunting scene with a human holding a bow and arrow, human figure wearing a

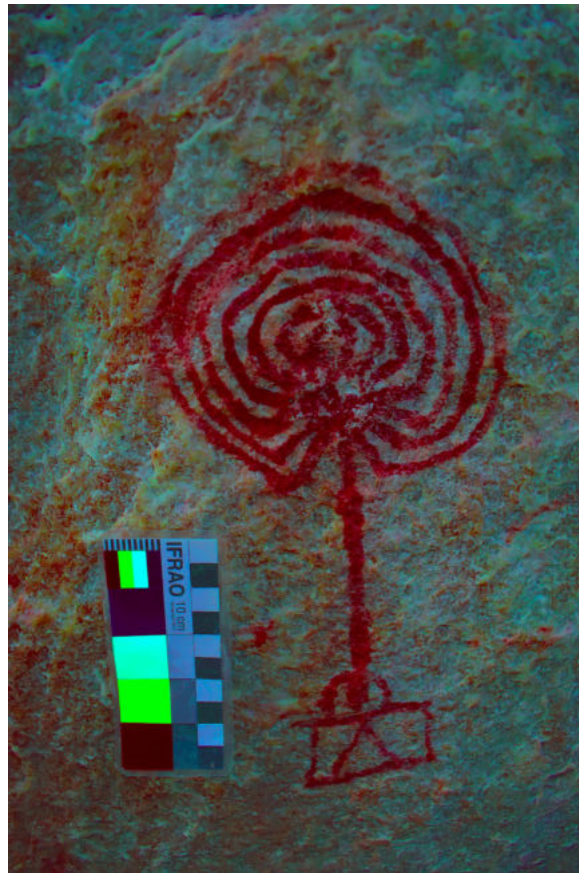


Figure 2. Labyrinth with seven concentric circles.

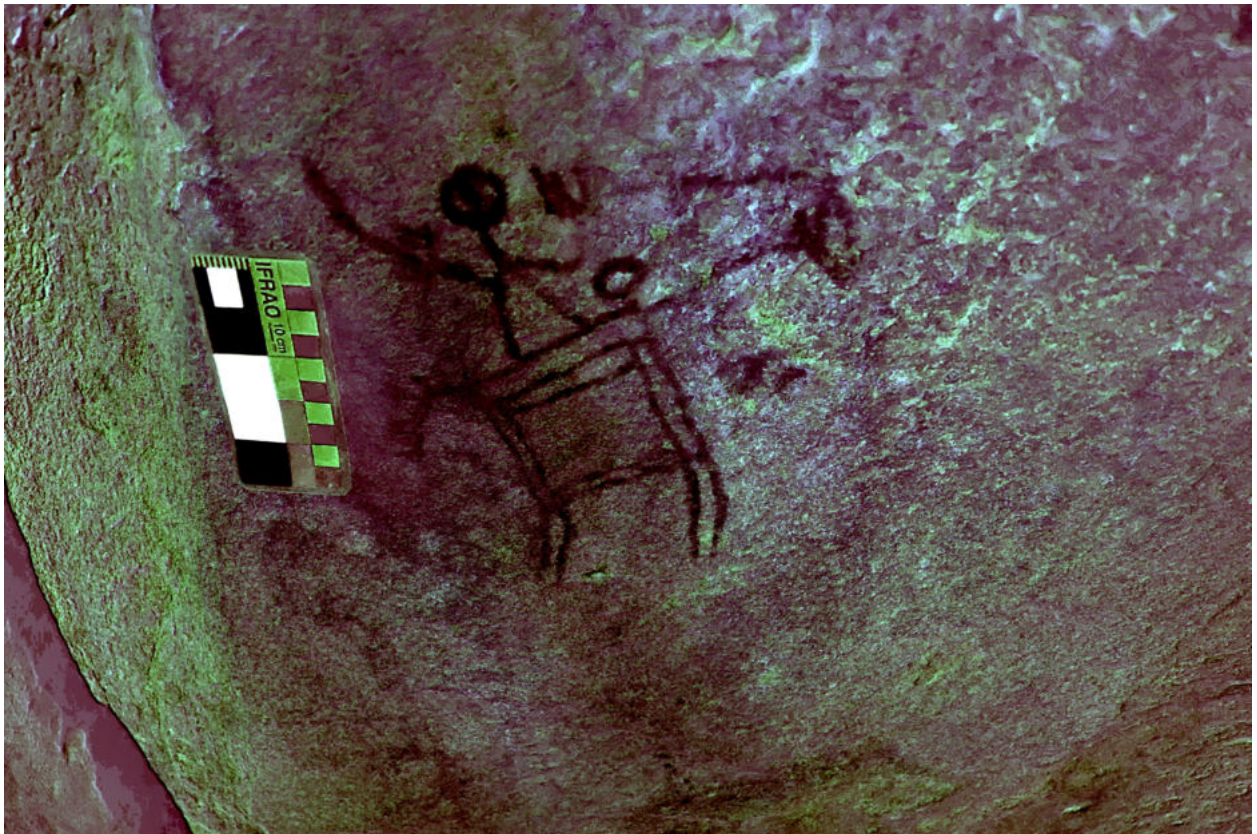


Figure 3. Rider on caparisoned horse.

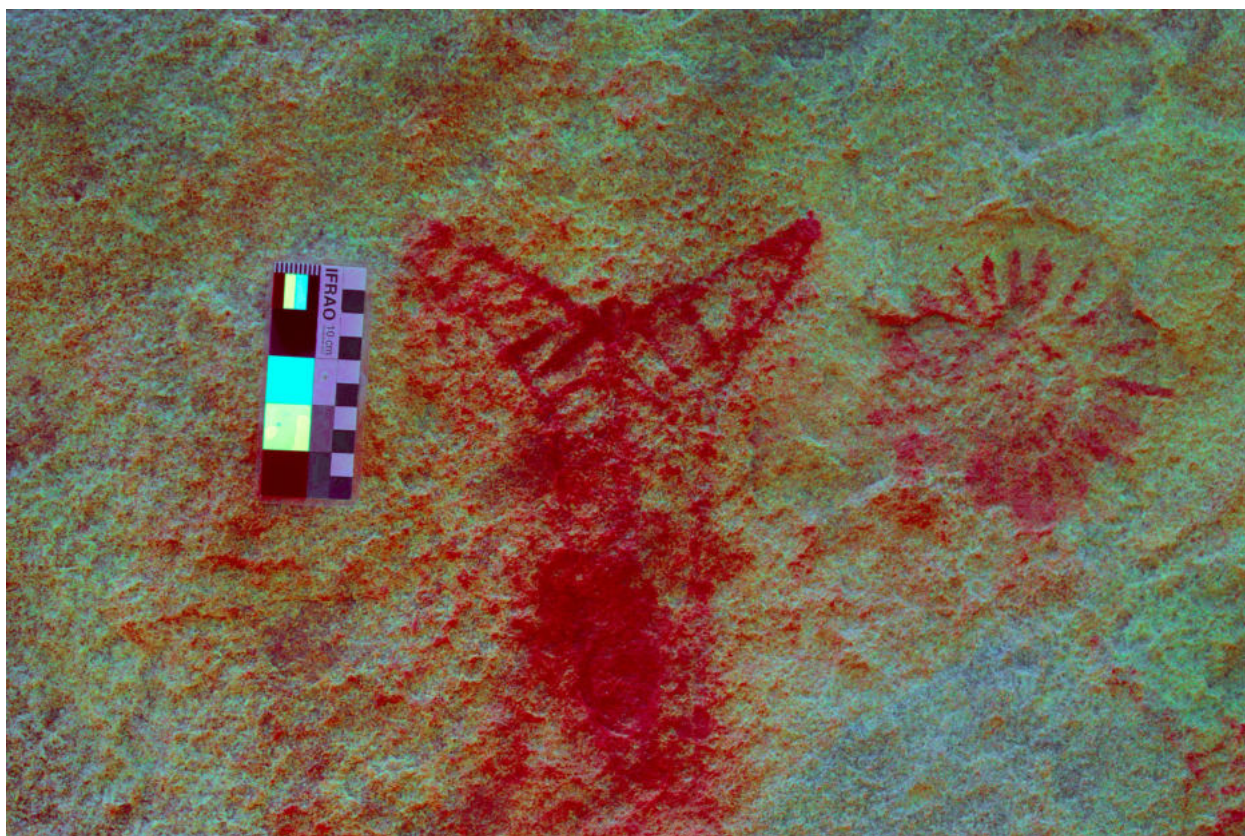


Figure 3. Sun with an unidentified figure.

unique head-dress, complex figures with interconnected geometric intricate patterns, pipette figures with a combination of geometric motifs (Fig. 5), abstract figures with chevrons, lines and dashes inside it, grid patterns (Fig. 6), snake and lizards, rectangle and circle with human figure inside it, I shaped figures, plant motifs, woman figure (Fig. 7), cross in a circle, antelope figure are the prominent motifs here.

Ethnographic Interpretation

Art has always been an integral part of the human society. It is related with the festivities and has been a medium of expression of joy and prosperity among the ethnic population. This tradition is prevalent among them in the form of wall paintings, ritualistic drawings, tattoos, handicrafts etc.

The study area located in the Jamui hill ranges is surrounded prominently by Santhals and seldom Yadava (Ahir) population. The ethnic groups practicing paintings are studied to trace back the rock art tradition of the region. A survey was carried in the Santhal villages near the rock shelters. The villages explored during the study are Sakdari, Tara Tanr, Bardon, Birgodda, Ahradih, Rorodih, Harni, Khalari, Jathar, Tumkiya, Titithiya and Kerwatanri. The Santhals in the study area do not continue the practice of painting their houses currently. The traditional mud walled houses have been replaced by modern cemented constructions. Hence, a survey of the Santhal villages in Dumka district of Jharkhand was also conducted. The villages studied are Bara Tanr, Navadih, Taljhari, Baghmaari, Dumariya and Kherwa. During the survey, Tattoos on the hand of Santhal women (Fig. 8 a &

b), comprising of zig-zag lines, floral motif, Sun symbol, box like pattern, a large rhomboid or a combination of triangles, large dots and leaf-like figures have been found. Sohrai and godhani paintings (Fig. 9 a & b, Fig. 10) on ground and the mud-walls of the house have been documented. Before painting, the wall is prepared by plastering it with fine clay mixed with grass & cow dung. Then it is painted with white colour, prepared from chuna (lime) or rice flour and water.

There are a large population of Yadavas (Ahirs) who resides in the village Tetariya Tanr, located near the rock shelters and still practice the tradition of painting their houses during Deepawali festival. The locals call these rock shelters as 'Kohbar'. They relate the rock paintings with their mythical hero Veer Lorik (Kesri: 2006) to whom they trace their ancestry. The figures painted by them on their mud-house walls resemble the pictographs of the rock shelters (Fig. 11, Fig. 12).

According to the Santhal legend, the first couple on this earth were Pilchu Haram and Pilchu Budhi. From their offsprings, the twelve clans (*Pari*) of Santhal emerged. Each clan has their own totemic symbol. Hansda is the elder one, named after goose (Hansa). The second one is Murmu named after murum enga, the nilgai antelope. The third clan is Marandi, named after a weed of paddy field (*Ischaemum ramosum*). Fourth one is Kisku, named after the bird kingfisher. Fifth clan is Soren who took their name from Kritika Nakshatra. There is also a myth prevalent among Santhals that Ayang Soren originated from snake (cobra). The Tudus originated from the Owl. (Schulte-Droesch 2016)

The five junior clans include Baskey, whose totem is Baske daka (stale rice), the Besra with totem falcon



Figure 4. Pipette figure.

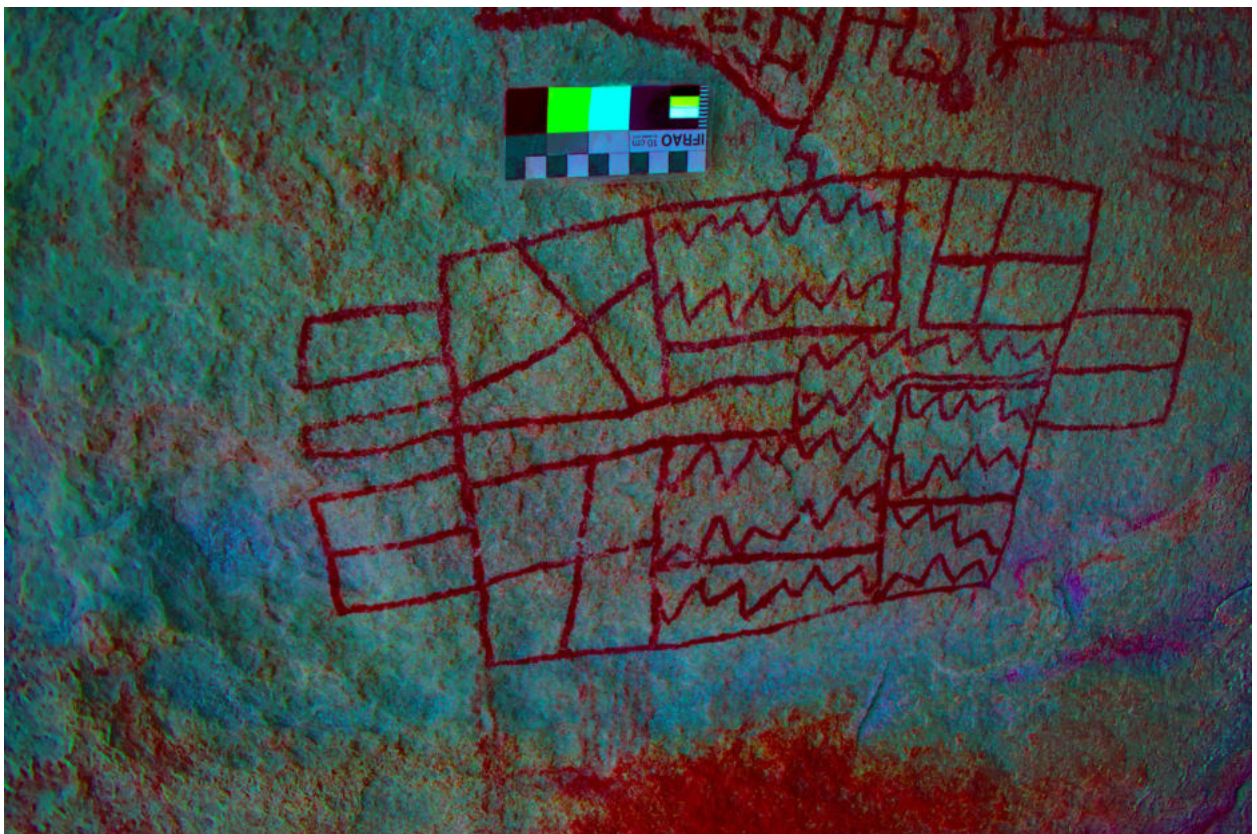


Figure 6. Grid Pattern.

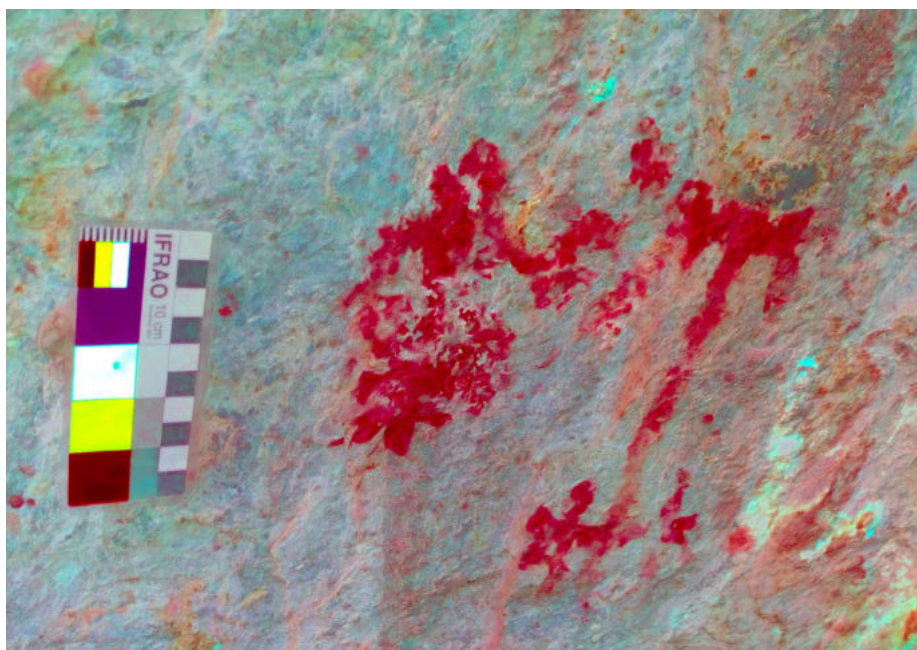


Figure 7. Woman figure.



Figure 8 a & b. Tattoos on the hand of Santhal women.



Figure 9a. A man holding stick/sword near a geometric design. 9b. Box with arch shaped design and cattle hoof marks.



Figure 10. A Santhal girl besides the godhani symbol drawn by her.



Figure 11. A Complex box patterns and circular designs painted on the mud walls.



Figure 12. Anthropomorphs and floral images painted on the walls.

(baaz), the Caure (lizard), the Pauria (pigeon), which is a peace making clan among the Santhals. The fifth one is Donker clan. Each clan protects their totem. They believe that if someone from the clan kill these totem animals, the whole clan will suffer from ill fate. The upper seven clans consider themselves higher in status and do not marry to the lower five clans. There are also marriage restrictions between the upper clans like Hansda and Murmu clan, Marandi and Kisku clan. No other clan marries with Besra and Chaure clan because they are considered lower in status. Incest relationship between members of a sub-clan is a serious offence. (Somers 1985).

There is depiction of the totem symbols in the rock art of the region. The totem of Hansda clan (goose or Hansa) is depicted in the rock shelter XVI.A.1. (Fig. 13 a). Nilgai or antelope which is the totem of Murmu clan is depicted in Basariya Kol rock shelter. (Fig. 13 b). The totem of Ayang Soren, snake is painted in the shelter XVI.A.5. (Fig. 13 c). A pictograph of owl, totem of Tudus is depicted in shelter XI.B.1 (Fig. 13 d). Four lizard figures are depicted in rock shelter XVI.A.1. (Fig. 13 e). Lizards are the totem of the Caure clan. The figures are in very faded state. It is tough for a normal person to see them with naked eyes. The images are enhanced with the help of D-stretch software.

Threats and preservation status

The pictographs are generally painted on the slightly slant rock shelters. Shelters are small in dimension and are prone to weather conditions. The sunlight, seepage of rain water and wind neffects is the most common cause of deterioration. One can find a layer of silica encrustation over the paintings in shelter XI.A.3, XI.B.1, XVI.A.1, XVI.A.2, XVI.A.4, and XVI.A.5. At some places trees and shrubs have grown near the shelter, causing damage to it (shelter XI.A.3, XVI.A.4). The growth of lichen over the paintings also poses a catastrophic effect. There are the nests of mud-wasps and termite in shelter XI.A.3. The quality of the sandstone over which the paintings have been executed is very poor in nature. The cracks and stone flakes are frequent in all the rock shelters. Many of the paintings have faded or destroyed due to rock peeling off the shelters.

Apart from the natural factors, human vandalism is also playing a great role in the deterioration. There are soot marks on the ceiling and wall of the shelter XI.A.3 and XVI.A.4. Someone has vandalised the paintings with black paint or coal tar in shelter XVI.A.4. There is an urgent need to conserve this cultural heritage otherwise we will lose them for sure.

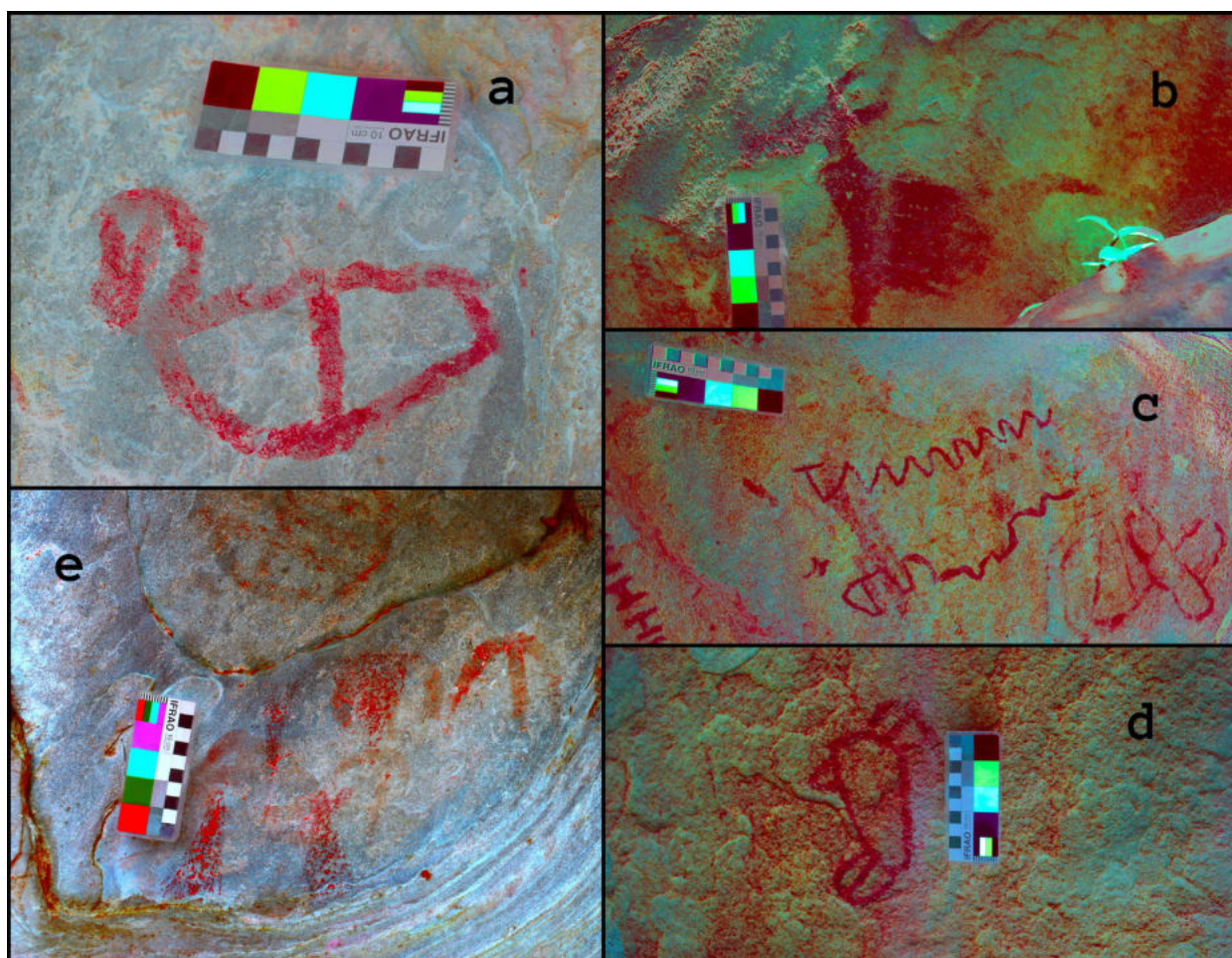


Figure 13. Totem symbols of the Santhal clans depicted in the rock shelters



Conclusion

The rock art of the north-eastern Chhotanagpur plateau region is ritualistic in nature. Simple natural designs are less in this region while the complex designs are frequent. The complex designs of circles, squares, chevron patterns, Cross in circle, zigzag lines, dots, pipettes are abundant in nature. Some similar paintings executed in the rock shelters are still painted on the mud-house walls in this area.

With the advent of modernisation, the mud houses are getting replaced by cement houses and the tradition of painting is vanishing. Their zeal and excitement of celebrating their festivals are also decreasing, causing an irreparable damage to their rituals and their understanding of the symbols. There is an urgent need to explore the whole Chhotanagpur plateau and document the daily lives and rituals of the ethnic population to understand the meanings of the symbols depicted in the rock art.

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Rock Bruisings along the Dyke-Swarms: A Gallery of site history in Advibhavi-Rampura, South India

R. ARJUN

Introduction

South India is India's most decisive rock art region. Its geological and temporal contexts have contributed to the development of diverse rock art forms (e.g., see Allchin and Allchin 1994-95; Arjun 2018; Blinkhorn 2021). The sandstone formations around Badami (Kaladgi Basin) have rich illustrations of painted images relatively dated to the Mesolithic period. Similarly, the limestone/ quartzite formations centring the Kurnool and Cudapah regions (Kurnool-Cudapah sub-Basins) sheltered the painted images from Mesolithic to early history (See Korisetar 2018, for a detailed review on Indian rock art studies). The theme of the panels in both the regions generally focused on hunting-gathering activities and prolifically on curvy shaped human images showcasing shamanism. The most trending change in the rock art forms and the techniques began to appear in the older gneissic landscapes of southern Deccan Plateau owing to intensification in subsistence economy during the Neolithic (3000-1200 BCE) and Iron Age (1200-300 BCE). The rock bruising/ abrading became a hub of art in the dyke/ gabbro associated granitic hills in north-eastern Karnataka and north-western Andhra Pradesh (Arjun 2018).

This paper is specifically focused on the mafic dyke swarm series formations at Advibhavi-Rampura (Fig. 1) in Raichur (Karnataka, India). It was occupied perhaps during the Neolithic-Iron Age period. It explains 1) how rock bruising narrated comprehensive site history from the Neolithic period to the contemporary activities testifying

to adverse changes in the local landscape. 2) It also explains the development of demonstrative art forms at the sites as 're-invented' content using existing abrading techniques (Arjun 2017).

Dyke swarms at Advibhavi-Rampura, and the geo-archaeological context

Dyke swarms are intrusive igneous parallel, linear and low elevated formations (as exposed on the surface, see Fig. 2 for a partial view of dyke swarms) extending miles together in the denudational landscape settings in Eastern Dharwar Craton. Dyke formations were a great source of rocks for the production of celts in the Southern Neolithic culture. During this period, the dyke swarms often turned into a centre of resource locations, not limited to foraging dyke blanks for stone tool production. Still, beyond that, they became resource locations and gradually developed into lithic workshops, settlements and rock art sites (Arjun 2021). Beyond all these, mafic dykes are dark coloured igneous rocks, their surface when abraded; the canvas provides a precise exposure for the artwork. Here is a site in the backdrop of a low elevated dyke swarm stretching 3.5 km (Fig. 2) located in between two hamlets, Advibhavi and Rampura. The site appears as an open natural gallery of rock art images, illustrating generations of narrative scenes since the Neolithic period. There is much more to anticipate and study from this site in future rock art productions, as it is a living site holding ethnographic significance.

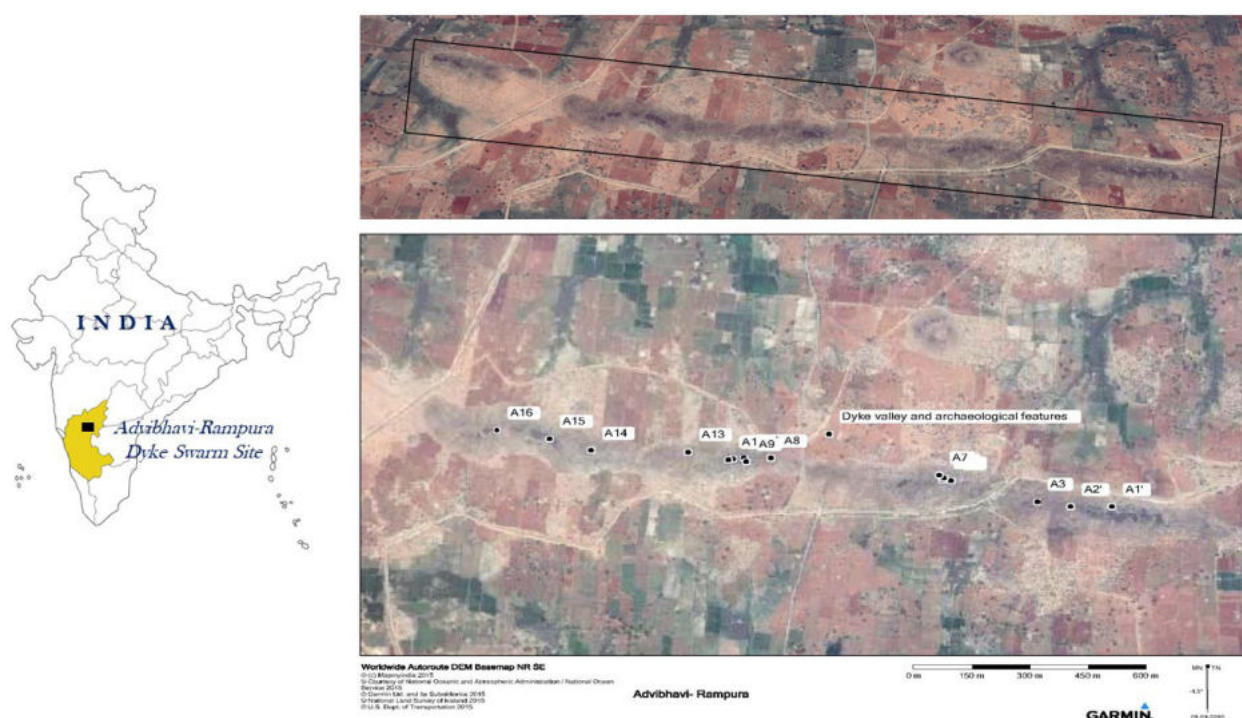


Figure 1. Dyke swarm stretching 3.5 km at Advibhavi- Rampura in Raichur. The locations indicated are rock art clusters spreading across 2.5km. See Table 1.

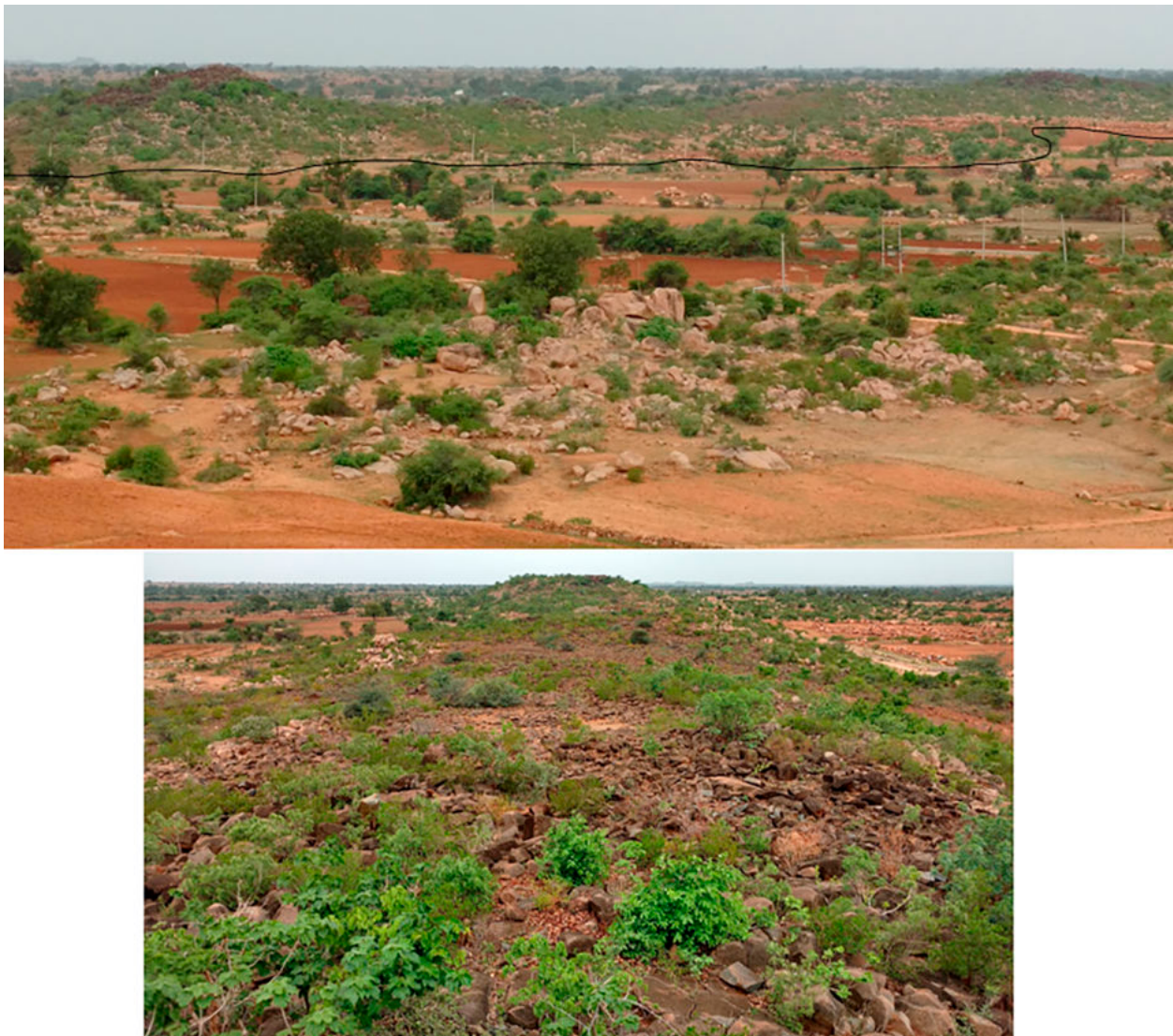


Figure 2. General view of dyke swarms at Advibhavi-Rampura. Photo by author, 2016.

At Advibhavi-Rampura, sixteen clusters are recorded at a stretch of 2.5km (Fig. 1 and Table 1). Rock bruising of vivid images, mainly of humped cattle in different forms (Fig. 3 and 4), deer, dog, peacock and anthropomorphs are recorded. Each cluster is identified based on the minimum density of five rock bruising and the archaeological features in locational contexts. The image panels are often found associated with archaeological features such as the ringing rocks (rock gongs), modified water pools, celt grinding grooves, bedrock mortars and settlement terraces (Fig. 5, 6 and Table 1).

In a few clustered locations, we can trace the development of modern art forms imitating the content and the abrasion technique of the Neolithic- Iron Age period. Particularly imitations of cattle images are commonly evident with added features depicting cattle with the decorated body (Fig. 7) and being tamed with ploughshares. The hunting dogs with human images are new additions to their imitative ventures (Fig. 8). On the other hand, increasing innovations are also seen in the panels displaying vernacular architecture (Fig. 9) and merchandised vehicles such as the earth excavator, car

and bi-cycle (Fig. 10). Most images are made on smaller surface/ field boulders; they are spottable as one walks through the site. The images are not concentrated on rock shelters or inclined structural rocks, as evident in the other neolithic settlement sites in Raichur Doab (e.g., Maladkal, Kotekal, Anandgal etc., Arjun 2017).

Rock art and site history

Art conceptualises various interceptions occurring in the socio-cultural practices, technological changes and changing dynamics with humans and ecology at different interval periods. Accordingly, new art forms add-on overlapping/ appear next to the earlier images, which have helped us to develop a comprehensive chronicle of the sites (Arjun 2018a; 2020). The current research attempts to develop a 'site history model' based on art composition evidence and observation of demographic changes. At Advibhavi-Rampura, three distinct phases in rock art production are observed (Table 2), which can be stratified based on both the content and the morphological features based on the relative degree of



Figure 3. Humped cattle with the ithyphallic depiction in thick outline form. Photo by author, 2016.



Figure 4. High raised horns and humped cattle in silhouette. Photo by author, 2016.



Figure 5. Settlement features associated with rock bruising locations developed during the Neolithic and Iron Age periods. Photos by author, 2016.



Figure 6. Modified water pools for water collection on different locations of the dyke swarm at the site. Photos by author, 2016.

Table 1. Cluster wise distribution of rock art locations and associated archaeological features on the dyke swarms of Advibhavi-Rampura. Shaded boxes indicate the presence of the various features showing the locational contexts of engagements (After Arjun 2017: Table 3.49).

Locality no.	Rock Bruisings	Ringings Rocks	Water Pools	Axe grinding grooves	Bedrock mortars	Settlement terraces
A1						
A2						
A3						
A4						
A5						
A6						
A7						
A8						
A9						
A10						
A11						
A12						
A13						
A14						
A15						
A16						



Figure 7. Images of cattle in artistic lines on the body, also anthropomorphs seen in tamping efforts. Photo by author, 2016.



Figure 8. The upper image outlined and silhouette depicted cattle in bulgy body, and human images are seen in action to tame the cattle. Lower image a pack of dogs and tamers. Photo by author, 2016.



Figure 9. Bruised images of vernacular architecture of temple category. Photos by author, 2016



Figure 10. Bruised images of merchandised vehicles and slender bodied cattle image in naturalistic forms. Writings in Kannada and English are also traceable in the panel. See Figure 12 for the other side view of the image boulder. Bruised image photo by author, 2016. Additional images are from internet sources.

patination on the abraded lines or silhouette surface.

Three stages of development are classifiable in the rock art productions at the site (Table 2). In the first phase, typical cattle images in thicker lines and silhouettes suggest their occurrence during the Neolithic-Iron Age period and associated developments occurred with the settlement terraces and other features such as the ringing rocks, grooves further discern their activities, particularly in the locations of A1, A2, A4, A6, A7 and A10. This phase is relatively datable to the transitional period of Neolithic to Iron Age, first millennium BCE (Arjun 2021).

There is a hiatus in tracing the activities that occurred at the site between the first and second phases.

The second phase is mainly a phase of attempts towards imitating the cattle images from the earlier

phase with the moderate stylisation of bulgy cattle body, extreme stylistic horns by thinner abraded line and silhouette. A keen sense of visual observations made by the modern shepherds/herding communities on the existing rock art images and style forms of the Neolithic period led to the blending of contemporary activities centring around animal domestication. Hunting dogs in action with their tamers appearing along with the vernacular script (Fig. 10) on the panels became a new trend of content in the second phase. Locations such as A2, A3, A4, A7 and A10 provided the canvas for new experimentations.

The third phase is much more recent in its production and significantly testifies to the landscape changes occurring at the site since the 1980s due to agriculture, construction of irrigational canals and the road lines.

Table 2. Site history model of rock art in Advibhavi-Rampura.

Characteristics	First Phase	Second Phase	Third Phase
Image morphology	Thick abrasion	Thin abrasion	Thin abrasion
Colour	Darker yellow-reddish and dull turned patinated appearance	Relatively creamy colour compared to the third phase	White and bright appearance
Cattle images	Cattle in naturalistic- crude with prominent ithyphallic feature	Imitative cattle images blended and bulgy body with taming attempts	Cattle in naturalistic forms with decorated (textile like) patterns on the body
Other contents	Anthropomorphs in community gatherings and ithyphallic images	Hunting dogs and dog taming. Kannada script, nouns	Earth excavators, car and bicycles. Vernacular temple structures. Kannada script, nouns
Features at clusters/ locations	Ringed rocks Bedrock mortars Modified terraces	None	Ringed rocks
Source of images/subject	Cattle domestication and community gatherings	Older cattle images and observation of contemporary agriculture activities	Contemporary settlement activities, agricultural landscaping, road infrastructure and travelling. Also, the ability to write among the abraders.
Relative period	1 st millennium BCE Neolithic- Iron age transition. Based on the naturalistic-crude form of cattle images and settlement features	18 th and 19 th century (Based on the script and movement of herders' communities)	1980s to current (Based on the depiction of the Hindustani Contessa car model)

**Figure 11.** Written "ಕುಳಿ" in Kannada, meaning cattle. Photo by author, 2016.**Figure 12.** Slender bodied cattle image in naturalistic forms and the image surface used for ringing rock gongs. Photo by author, 2016.

Locations such as A5, A9 and A11-A16 are locations engaged in current art forms. We can see two extreme ends in the contents here. Earth excavators, roof topped bicycle, and car similar to the Hindustan Contessa model are abraded behind the cattle images. The cattle images are now slender-bodied with naturalistic features lacking exaggeration in depicting cattle's hump, horns and phallus. The surface of the cattle images is used in combination with ringing rocks aside from the bruising. The third phase suggests the change in artists who are possibly not the herding communities passing

by; instead, they are part of the individuals working in the adjacent agricultural fields from the nearby hamlets. Ringing gongs is a source of leisure and entertainment for them, and often ringing rocks call for the attention of individuals located at far distances. The foothill of dyke swarms is exposed to extensive landscaping primarily by clearing field boulders and is piled up for marking field boundaries. This is done through massive merchandised earth movers/ excavators. The images of the earth excavator at the site symbolise the Modus operandi of the modern population who are rigorously transforming the landscape of a prehistoric site into a new landform. The images stand themselves as a testimony to tracing the trajectories in the rock art sites like the Advibhavi-Rampura. The rock art production has not come to an end at this site; it continues to have unembellished anticipation of recording new art forms in the future.



Conclusion

Advibhavi-Rampura is a prominent rock art site located along the dyke swarm series stretching for 3.5km in the gneissic landscape of Raichur Doab in South India. Rock bruising and associated archaeological features of vivid settlement activities were systematically studied with geospatial tools. Geo-referenced data and rock art content indicated the spatial-temporal developments in forming a vast gallery of rock art locations/ clusters. Further, the art contents helped categorise the site's history into three phases; the earliest is the Neolithic-Iron Age phase, the second is the modern phase and the ongoing contemporary phase. The first phase establishes its antiquity with the regional Neolithic villages; similar images are comparable to the full-fledged Neolithic and Iron age settlements in the Raichur Doab. The second and third phases are recent; their art images mirror modern activities supported by the Kannada script and the movement of merchandised vehicles. Artists of the last third/ existing phase have endorsed landscape changes in the Neolithic sites, initially being a denudational landscape and now turned into agricultural landforms on the clearance of loads of field boulders. Images of earth excavators and ploughshares mounted cattle tilling the land further testify to changes in the land use pattern and its Modus operandi. Continued the tradition of rock bruising and ringing gongs in different styles and forms, including but not limited to using image boulders for ringing rocks, projection of cattle driven field ploughing scenes, attempts to imitate older cattle images, use of regional scripts to identify the cattle, images of vernacular architecture and so on became common. All these data have helped this research establish the site history of Advibhavi-Rampura into a three-phase model and trace landscape changes in the site environs as historical trajectories invariably influenced in the

production of images. As the bruising of images and ringing gongs are currently in practice, the site has ethnographic importance for periodic research.

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Exploration and Documentation of Rock Art Sites in the Vindhyan hills of Madhya Pradesh (Central India) and implications for their conservation

RAJESH A. POOJARI

Introduction

The author reports on new painted rock shelters from the Vindhyan range, north of the Narmada River, between Salkanpur and Khidiya Kurmi in the Sehore district of Madhya Pradesh. While significant work has been done at nearby sites such as Bhimbetka, Adamgarh, and Pachmarhi complexes, very little work has been done within the central Narmada Basin. The author has tentatively counted over 1,479 individual paintings spread across 75 individual rock art shelters through systematic surveys. These painted shelters are being affected at an alarming rate due to illegal activities such as deforestation, stone mining (and occasional vandalism), and natural factors such as geomorphic degradation and constant exposure to the elements. Therefore, the author conducted these explorations and primary documentation to propose suitable methodologies for interpretation and possible conservation and carry them out for future studies and scientific analysis, contributing to the author's doctoral research.

Previous work

The Sehore District is located in Madhya Pradesh, central India. Sehore City is a part of the Bhopal Division and is the district's headquarters. It stretches around 6,578 square kilometres (2,540 sq mi). Bhopal, Raisen, Hoshangabad, Dewas, Shajapur, Rajgarh, and Harda are the seven districts that surround Sehore. Lacquer bracelets from the district are treasured by the Gond and Bhilala Nad Korku tribes in the area. This tribe's traditional dance, Bhavai, is a beautiful demonstration of their cultural bond. The Bagoria dance, with its loud drum beat, is still performed in the tribal area of Sehore during the Holi celebration of colours ("Profile | District Sehore..." n.d.). Sehore stands in the middle of the Malwa region, in the foothills of the Vindhya Range. Very little work and publishing on rock art sites seem to have been done earlier in the Sehore region. Based on the available literature, rock art has been reported in Bandarjari (Shaik and Chauhan 2013), Saru Maru (Simte 2015), Bayan (Kaur 2018), Joshipur (Chauhan et al. 2015), Naganpur, Talpura and Chandla Kalan/Chikli (Chauhan et al. 2017). More thorough work on these rock art sites must be done, documented, and publicized before permanently gone.

However, previous scholars have done significant work at Bhimbetka, Adamgarh and Pachmarhi. These sites are part of the Narmada Basin, known for its rich preservation of vertebrate fossils and have been studied by various scholars since the 19th century (see Chauhan et al. 2015). This river basin is also home to the only known pre-modern Homo fossil/s in the Indian Subcontinent. It appears to have a long fluvial history spanning at least ~800 years (Rao et al. 1997) and archaeology (Patnaik et al. 2009).

V.S. Wakankar (1975: 17-34) discovered hundreds of painted rock shelters in the Bhimbetka region of central India in 1957 and began a detailed survey of painted rock shelters. Later, V.S. Wakankar and V.N. Misra excavated some of the rock shelters in Bhimbetka and uncovered its

stratified cultural sequences from the Lower Palaeolithic to Historical periods (e.g. Misra 1985: 35-47). Adamgarh site, which is in the Hoshangabad city, closer to the Narmada River, is another well-known rock art site in the area and was well known even before discovering the World Heritage Site, Bhimbetka. In addition to the rock art, preliminary excavations at Adamgarh's rock shelter and nearby regions yielded Acheulean and microlithic stone tools in different sedimentary stratigraphy (Joshi 1978; Shaik and Chauhan 2013). G.R. Hunter, who had excavated at the Pachmarhi site between 1932 and 1935, reported the Pachmarhi site to D.H. Gordon in 1958. These excavations have revealed a proper cultural timeline, starting from Mesolithic to later periods, and the rich rock art site of Churna (Dubey-Pathak 2013). The Pachmarhi region is historically well known for providing numerous rock shelters with various paintings, many of which are regional (see Sharma and Misra 2003).

Many of these South Asian rock art sites show a lot of overlap between different periods, ranging from prehistoric to Medieval, indicating that such locations were geographically, ecologically, and socio-culturally significant for multiple cultures over time. The villagers and the Madhya Pradesh Forest Department assisted with the fieldwork that resulted in the current paper.

The Study Area

The study area covers quartzite rich sandstone hill ranges parallel to the north of Narmada River from Salkanpur site to the border village of Sehore district near Raisen district, i.e. Khidiya Kurmi hills is conducive for the rock shelters due to its geological formation (Fig. 1). Rock art sites in the Sehore district have been reported at Bandarjari (Shaik and Chauhan 2013), Saru Maru (Simte 2015), Bayan (Kaur 2018), Joshipur (Chauhan et al. 2015) and Naganpur (Chauhan et al. 2017) in the past. Talpura is an ASI protected Buddhist site with rock art shelters (Chauhan et al. 2017). After further exploring the site, the author found some more rock art shelters previously unexplored or unrecorded. The author explored Chachmau and Khatpura in 2019, which yielded a fair amount of rock art shelters, including the Historical period hero-stone and Sati-stone on the route close to the sites. Chandla Kalan/ Chikli have been reported earlier (Chauhan et al. 2017). A dozen rock art shelters at Chandla Kalan/Chikli were extensively explored and documented in 2019 by Nupur Tiwari and the author, which will be reported as a complete report elsewhere. In March 2020, the author explored rock art sites at Digambar, Samnapur, Hoda and Khidiya Kurmi. All of the rock art location information can be found on the map (Fig. 2.1 & 2.2). The site's exploration was temporarily halted owing to tigers' sightings at these sites and the novel Covid-19 pandemic.

Aim

The objective was to thoroughly explore the site, record all the new sites at the edge of the Vindhyan range, and figure out the missing link between the known rock



Figure 1. General view of the site, Vindhyan Range, Sehore Dist, MP, India

art sites. The aim is to check the continuity between the known rock art sites of Bhimbetka, Adamgarh, Mandikhoh, and Pachmarhi in the rock art styles, patterns and occurrences. The other aim is to photographically capture and preserve them digitally as site deterioration due to natural and anthropogenic effects is higher. Further work includes a scientific analysis of pigments, creating databases of these findings, and proposing possible conservation-preservation measures for these sites. Sites within the Reserve Forest area have been studied and explored. Sites within the Tiger Reserve have only been identified by employing a village survey for future studies, which will be done after permission has been obtained from the Forest Department.

Methodologies and gadgets used

Initially, a village survey strategy was utilized, as some local people were familiar with specific rock art sites' locations. Villagers from nearby villages opposite their respective hills were hired for exploration and security reasons because of their local knowledge of the forest and animal movements. A customized rock art field form designed in 2019 was used this year with minor updates. It helped in rapid and convenient documentation of the relevant details of all visited rock shelters and the associated rock art. A Nikon Coolpix AW130 camera and Samsung m30s mobile camera was extensively used for photo documentation and digital preservation. These images will be later processed using ImageJ and D-Stretch software to enhance the panels and paintings, obtain comprehensive counts of individual paintings, and interpret superimposition patterns. A mobile version of D-Stretch software 'aD-Stretch' was used on-site for quick results and reference. Each shelter/panel, regardless of visible rock art, has been photographed and spatially documented with the help of a Garmin eTrex 30x Global Positioning System (GPS). LomVum Laser Range Meter - 150

m was used to measure the rock shelters' actual length, height, and depth. Limited surface collections of nearby lithic artifacts were also made for a basic understanding of site utilization, relevance and relative chronology through typology and assemblage compositions. These methods will be continued to be used for the remainder of the fieldwork.

Area covered and time taken

Rock art sites and site complexes that have been explored and documented include Talpura, Chachmau, Katpura and Chandla Kalan/Chikli from Sehore district and Mandikhoh, Morpani from Hoshangabad district, covering 35-40 sq. km. in total and took 90 to 95 hours in June 2019. While rock art sites at the hills of Digambar, Hoda, and Khidiya Kurmi complex from Sehore district covered 13-15 sq. km. in total and took 80-82 hours in March 2020, respectively. For details about the sites in Mandikhoh and Morpani (see Poojari and Chauhan 2020). New rock art shelters were identified and documented at Digambar and Samnapur in the Sehore district and sites such as Chichwani, Kharidev Baba Pahad, Manatekar, Pipariya Khurd, Ranjhi, and Saradeh in the Hoshangabad district. The area covered was 5-6 sq. km. and 40-42 sq. km., respectively, for each district, which took 210 hours in total. Here, the author only mentions the sites found in the Sehore district (Fig. 2.1 & 2.2), (Table 1).

Sites explored and documented

The author will be studying in the Sehore district, from Salkanpur and Saru Maru in Budhni Tehsil (township) to Khidiya Kurmi in Budhni-Khatpura Tehsil, all at the foothills of the Vindhyan range parallel to the Narmada River. In a tabular format, see Table 2 for all the details and data entered from the field rock art forms used on-site for the ease of recording in situ of the newly explored

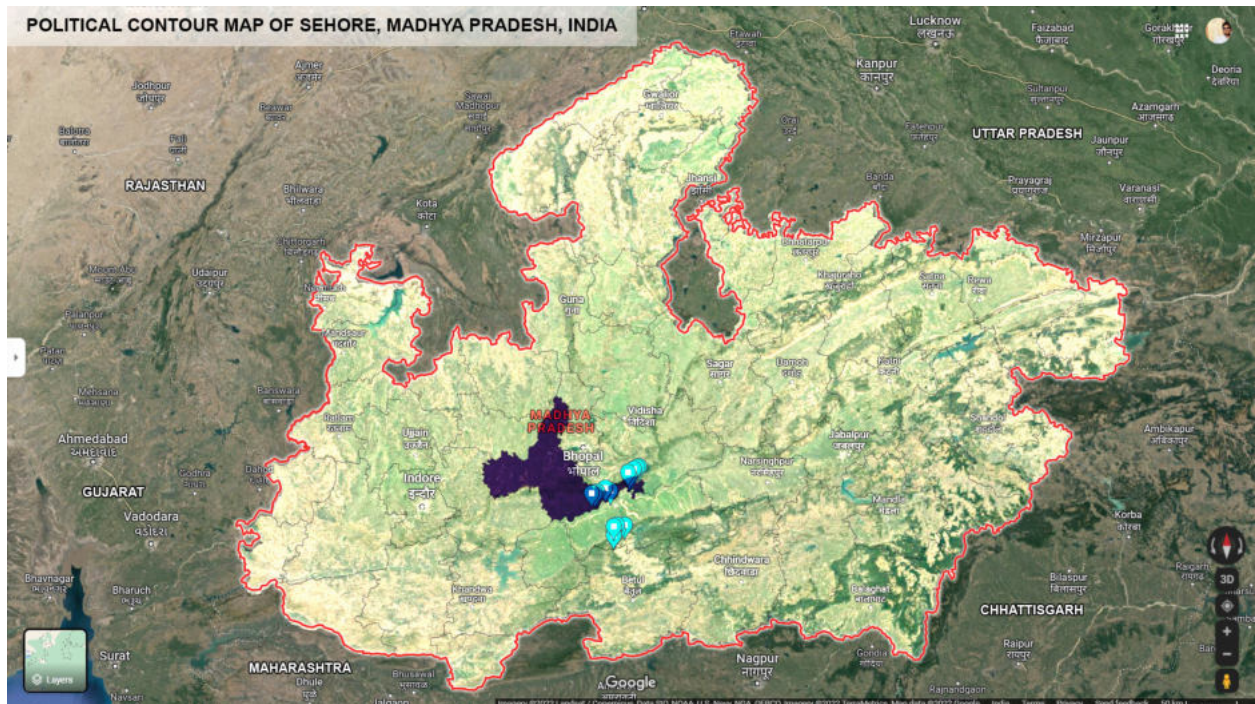


Figure 2.1. Political contour map of the study area - Sehere District, Madhya Pradesh, India

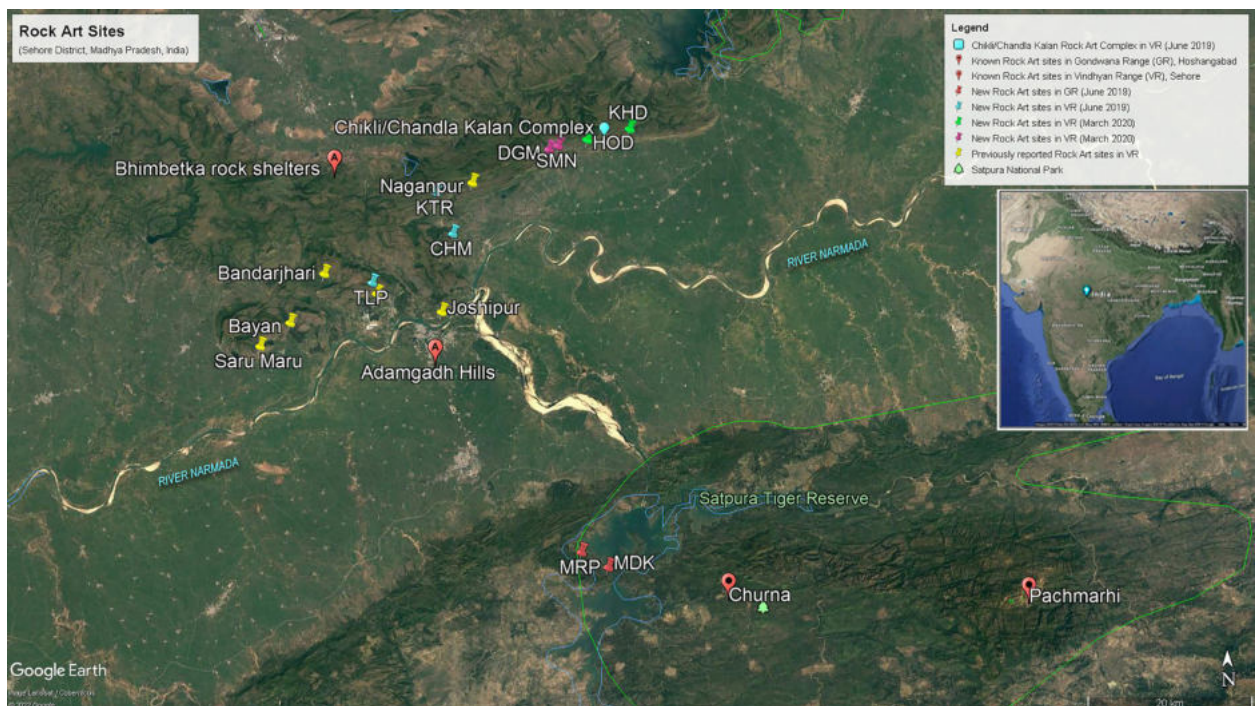


Figure 2.2. Map of the study area - New rock art sites from the Vindhyan Range in Sehere Dist, MP, India



Table 1. Total shelters explored with and without rock art in the Sehore District 2019-2020.

	Sehore District							Grand Total
	Talpura (TLP)	Chachmau (CHM)	Khatpura (KTR)	Digambar (DGM)	Samnapur (SMN)	Hoda (HOD)	Khidiya Kurmi (KHD)	
Total no. of rock shelters	14	5	7	40	27	4	24	121
Painted rock shelters	6	3	5	23	24	3	11	75
Non painted rock shelters	8	2	2	17	3	1	13	46
**Approximate number of paintings	250	20	56	267	644	120	122	1479
Painted canvas area (in meter/s)	-	-	-	L: 2.5, H: 5	L: 20.55, H: 5.00	L: 20, H: 3.7, D: 8.5	L: 30, H: 13	-
Largest rock shelter (in meter/s)	L: 27, H: 4, D: 4.5	L: 60, H: 20, D: 7	L: 15, H: 7, D: 3	L: 15.1, H: 4, D: 10	L: 50, H: 12.66, D: 7.16	L: 20, H: 3.7, D: 8.5	L: 30, H: 13, D: 10	-
Smallest rock shelter (in meter/s)	L: 3, H: 4.5, D: 2	L: 20, H: 2.5, D: 15	L: 4, H: 2, D: 1.75	L: 4.13, H: 1.18, D: 1.62	L: 2.13, H: 1.25, D: 2.71	L: 4.6, H: 1.62, D: 2	L: 18, H: 4, D: 5	-

** The number of paintings is approximate, which the author had counted on the site. The numbers would increase after processing them all in the D-Stretch Image enhancing plug-in under Image J software.

Table 2. Rock Art Form details of Shelters in Sehore 2019-2020.

Rock Shelter No.:	Talpura (TLP)					
	TLP_RS_01	TLP_RS_02 (a)	TLP_RS_02 (b)	TLP_RS_03	TLP_RS_04	TLP_RS_05
Coordinates:	N 22.798389, E 77.655150	N 22.798324, E 77.655179	N 22.798178, E 77.655371	N 22.799219, E 77.654582	N 22.797546, E 77.655616	N 22.796422, E 77.658122
GPS point no.:	Google GPS	Google GPS	Google GPS	Google GPS	Google GPS	Google GPS
Elevation:	-	-	-	-	-	-
Dimensions in meters:	L: 10, H: 2, D: 2.5	L: 27, H: 4, D: 4.5	L: 3, H: 4.5, D: 2	L: 4, H: 1.5, D: 2	L: 20, H: 7, D: 2.5	L: 10, H: 2, D: 2
Painted area in meters:	-	-	-	-	-	-
Direction facing:	South West	South West	South	South	South	South East
Site name/district:	Talpura, Sehore	Talpura, Sehore	Talpura, Sehore	Talpura, Sehore	Talpura, Sehore	Talpura, Sehore
Unique landmarks:	Machlikho at foothills facing Pilikarar.	Machlikho at foothills facing Pilikarar.	Adjacent to TLP_RS_02 (a). Facing Vardaman factory and new railway line on the foothill.	On the right side of TLP_RS_01 and facing Machlikho on it foothill.	On the left side and a little below of TLP_RS_02 (b) facing Vardhaman factory.	On the left side and a little below of TLP_RS_04 facing Budhni.

Table 3. Themes present in Rock Paintings at Sehore 2019-2020.

Rock Shelter Nos.:	Talpura (TLP)					
	TLP_RS_01	TLP_RS_02 (a)	TLP_RS_02 (b)	TLP_RS_03	TLP_RS_04	TLP_RS_05
Animals / Bird Figures	✓	✓	✓	-	✓	✓
Human Figures	✓	✓	✓	✓	✓	✓
Horse Men	✓	✓	✓	-	✓	✓
Warriors	✓	✓	✓	✓	✓	✓
War Activities	✓	✓	-	-	✓	✓
Hunting Activities	-	-	-	-	✓	-
Social Activities	-	✓	-	-	-	✓
X-Ray Figures	✓	-	✓	-	-	-
Geometric/Abstract Figures	✓	✓	-	-	-	-

rock art shelters. See Table 3 for a summary of the broad themes found in the rock paintings at the sites.

Talpura (TLP)

In June 2019, the author started exploring this Buddhist site protected by the Archaeological Survey of India (ASI), where the two rock art shelters were previously reported near the Buddhist stupa (IAR 1975-76; Chauhan et al. 2017) (Figs. 3A-B). Therefore, the author revisited the site to explore further to record and

find more new rock art shelters systematically. Shelter (TLP_RS_02) has two shelters that have previously been counted as one whole shelter, which is naturally divided due to its geological formation and hence it was named (TLP_RS_02 [a] and 02 [b]) respectively for the ease of recording and its study (Fig. 3C-E). Three more shelters were discovered that had rock art in them. One of the shelters (TLP_RS_03) had a dead animal that appeared to have been hunted by a carnivore animal (Fig. 3F). The surveys were then adjusted according to the safety concerns. There were only two paintings in white color



Figure 3. Site Talpura (TLP): A-B) Archaeological Survey of India board at the entrance of the protected site, Stupa structure; C-E) Side view and multiple superimposed rock paintings in the Shelter TLP_RS_02[a]; F) Prey of a wild animal in the shelter; G) Microliths found on the site ground surface; H) Pollution due to the nearby railway track construction.



visible on the wall near the ceiling. Two more rock art shelters were documented (TLP_RS_04) and (TLP_RS_05) from where Machlikhoh village was visible below. Microliths can be found on surfaces all over the site (Fig. 3G). These shelters are in a bad deteriorating condition. Geologically the stone surface is exfoliating and degrading at an alarming rate. Other than the natural effects, the construction of the new circular railway line at the foothill adds dust, dirt, and other pollutants to the air and affects the painted surface (Fig. 3H). Anthropogenic vandalism is also high on this site. More hills on the site's east side appear to have shelters due to the same geological formation and should be explored further for quantification and other research.

Chachmau (CHM)

At Chachmau, three hills were explored, viz. Dohri Danth, Ramtek and Mathada ordered from east to west, respectively. Dohri Danth hill had two large rock art shelters, widely spread width-wise. The villagers believe that the '*Chudail*'- the witches reside here. In addition, the villagers added that *Chudails* are the ones who have painted on the rock surface with the blood of people and animals. On top of the façade of (CHM_RS_02), the author found the S-shaped figures. Two S-shaped figures are easily visible, while the other two to three are faded, mainly due to the natural effects (Fig. 4A-E).

At the hill of Mathada, only one shelter was identified, and it is the only cave shelter recorded by the author in this region. According to an old Chachmau village member, the cave shelter (CHM_RS_03) has known the villagers for nearly a century. The villagers converted this into Lord Shiva's cave temple. Entering the shelter was not possible because of the frequent tiger sighting in the nearby region during the summer season. The cave has a water source inside.

Further detailed exploration and documentation of this shelter are necessary to find any paintings that may have survived inside the shelter, a rare phenomenon in India compared to Europe and other parts of the world. Due to regular accessibility, anthropogenic vandalism is higher. The villagers had whitewashed the shelter, painted their names, and installed a Shiva *Linga* along with multiple metal tridents (Fig. 4F-G). There was reminiscing of two to three faded individual paintings. Though the shelter was photographed and documented with a basic camera, detailed high-end 3D documentation is suggested, which would preserve the heritage and help in learning the depth, the use of this cave shelter and revealing by enhancing the hidden paintings below the whitewashed and soot layer/s digitally.

Khatpura (KTR)

Khatpura is located near Saidganj/Shahidganj, just a kilometre away from Naganpur. On the route to Khatpura, the author came across a Historical hero-stone at the Hathlewa village's junction (Fig. 5A-B), which is noted and photo-documented. This sculpture is a four-sided hero-stone. A historical Sati-stone was also documented in the foothills of Khatpura, and the locals worship the stele as their '*Kuldevi*'- an ancestral

goddess (Fig. 5C). The site comes between the same Vindhyan foot stretches, and this site is beside the old Bhopal highway.

At Khatpura, the author further explored some new rock art shelters near the waterfall. Microliths and quartzite stone flakes appeared in the open fields near the foothills (Fig. 5D). The number of microliths increased near the waterfall. There were many large fallen boulders near the water source, and these had rock paintings in them. The open boulder niche on the height adjacent to the water source (KTR_RS_01) had Historical and Medieval or maybe later period paintings with some older proto indigenous inscriptions painted red (Fig. 5E-F). The surface has a faint, faded appearance to older period paintings. The paintings are in red, orange, black, and white color. Below is the natural pond created due to the seasonal waterfall. There is one massive chunk of quartzite stone from which it is evident that large stone flakes had been flaked out of it (Fig. 5G-H). Another sizeable fallen boulder (KTR_RS_02) that might have had paintings at one point. Only two to three remained visible, and the others faded away due to anthropogenic and natural activities.

Similarly, local god-men occupied two shelters (KTR_RS_02) and (KTR_RS_03) (Fig. 5I-J). A little further near the stream gully (Nala) is another shelter (KTR_RS_04) which has some better-preserved rock paintings. It has at least two paintings of cattle cartwheels (Fig. 5K-L). Another open rock shelter (KTR_RS_05) houses more rock paintings on the higher elevation. The paintings are in the fading condition, and twenty individual paintings were counted that were visible (Fig. 5M). The vegetation was thick here, even during the summer, because of the water source. At (KTR_RS_05), very few microliths were visible on the surface because of the covered dried vegetation, but many microliths at the foothills, as mentioned earlier. The author did not explore further because of the recent sighting of the carnivorous animals around the site, which is the water source during the summer.

Digambar (DGM)

In early March 2020, the author started exploring shelters near the Digambar waterfall. There were two rock shelters. One adjacent to the waterfall has rock art (DGM_RS_01), and the other does not because it is precisely in the midway of the waterfall. However, it had archaeological artifacts like microliths, potsherds, and a terracotta-smoking spout (*chillum*) in the shelter (Fig. 6A-C). This shelter may have had rock paintings at one point, but due to the naturally damp environment and high stone surface exfoliation level, the paintings did not survive. In late March, the author continued exploring the remaining site and explored twenty-two new rock art shelters. There are six shelters (DGM_RS_02 to DGM_RS_07) just above the new Digambar temple at the foothill.

Shelter (DGM_RS_04) has been converted into a shelter shrine with a modern inscription painted in red. As explained by the local villager, these inscriptions are the Sholkas/Mantras dedicated to Lord Shiva. The local God-man has also installed iron tridents and many terracotta lamps in the shelter (Fig. 6D). Shelter (DGM_RS_06) has a section of its ceiling fallen off with paintings on them. The majority of the shelters in the Vindhyan range have been impacted by recent deforestation and exposure to the environment, which has become highly polluted due

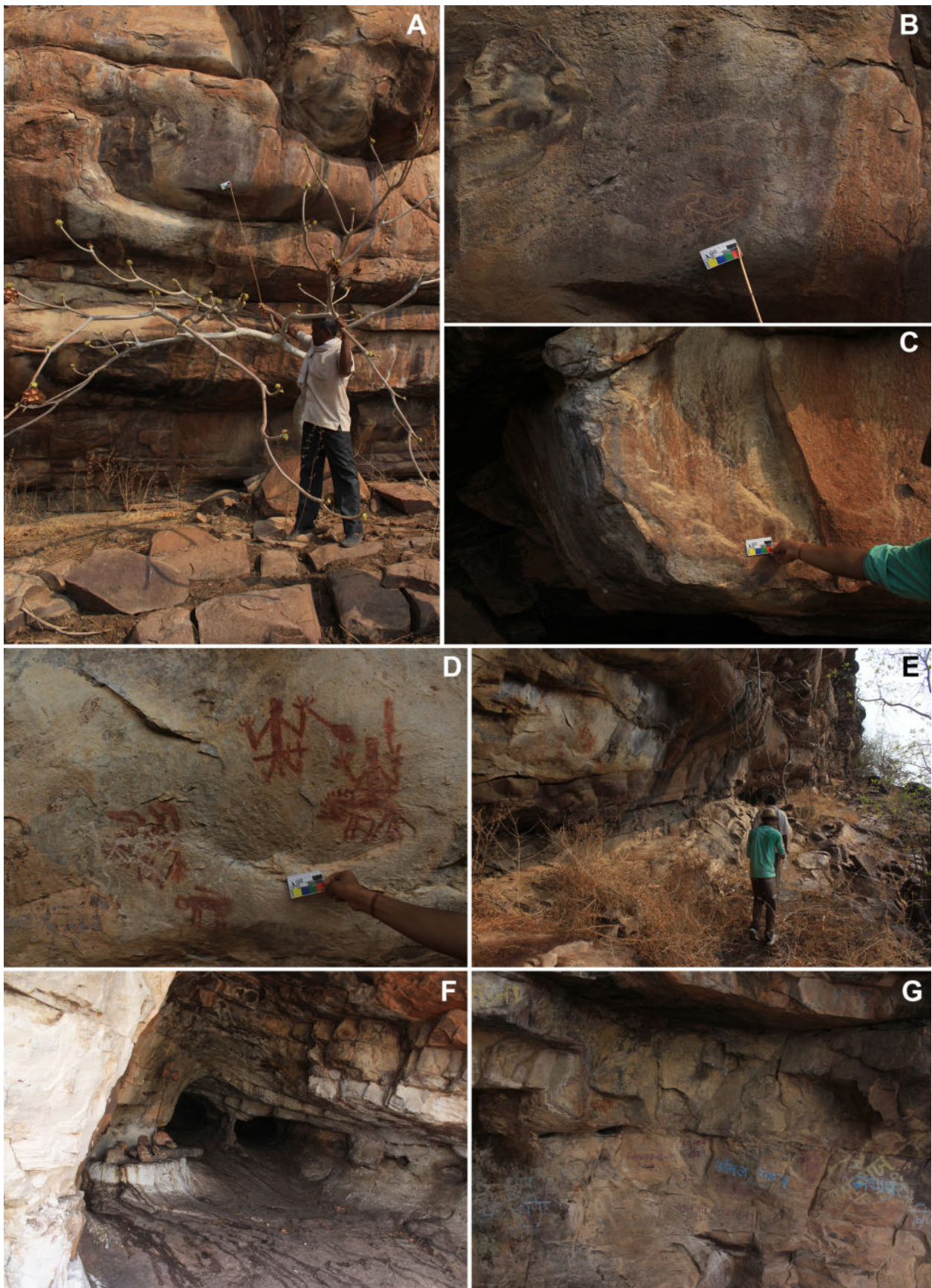


Figure 4. Site Chachmau (CHM): A-E) S-shaped figures drawn on the higher facade of the shelter, other geometric patterns and superimposed painting - white on red and stretch of the shelter CHM_RS_02; F-G) Whitewashed shelter walls, installed modern sculptures of deities, anthropogenic vandalism.



Figure 5. Site Khatpura (KTR): A-B) Historical period memorial Hero-stones installed in a village junction; C) Historical period memorial Sati-stone installed at the foothill of Khatpura village; D) Microliths found on the open fields on-site; E-F) Rock paintings and inscriptions found in shelter KTR_RS_01.

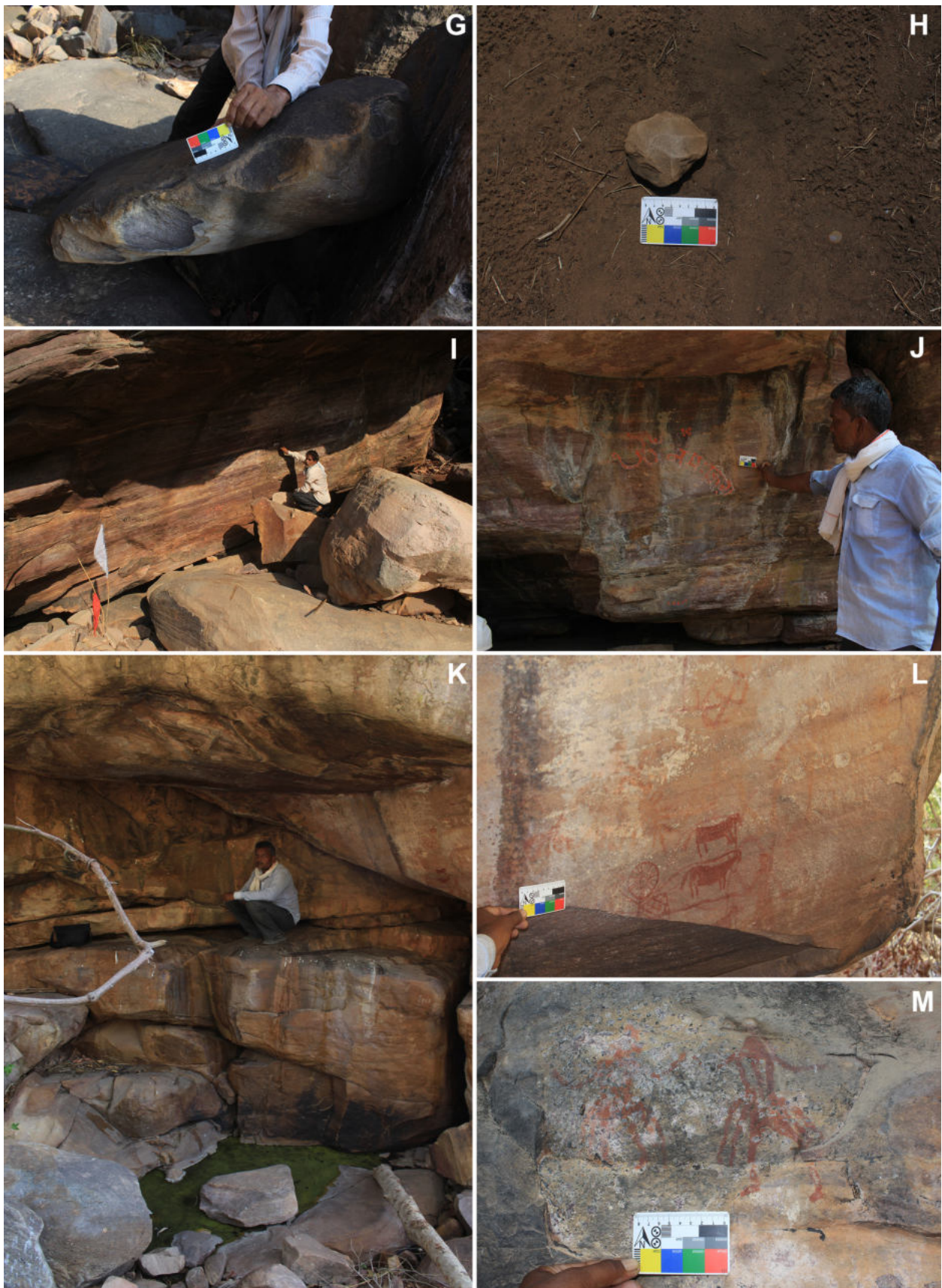


Figure 5. Site Khatpura (KTR): G-H) A large chunk of stone having edges flaked alternatively to remove large flakes, A large stone flake tool found in the open field on the site; I-J) Shelters converted to a modern-day God-man praying space and wall painted with recent religious signs and Shlokas; K-L) Shelter KTR_RS_04 having a painting of cattle cartwheels; M) Anthromorphs painted doing activities in shelter KTR_RS_05.



to forest grass burning and neighbouring industrial gases. Shelter (DGM_RS_08) is situated on a higher elevation and has paintings in red and white color. Because of anthropogenic activities such as campfire burning, wood burning has accumulated soot on the shelter's walls and ceiling. This soot has also been absorbed by the white color paintings, turning it into paintings made in black color (Fig. 6E). Rock paintings are in bad condition here, and the only reminiscence can be seen in some shelters like in Shelter (DGM_RS_07, 09, 10, 15 & 16).

Shelter (DGM_RS_18) is on the hilltop adjacent to the old Digambar Temple. The space inside is enough to sit and move around. This shelter has S-shaped anthropomorphic figures (Fig. 6F-G). This shelter is on the edge of the hilltop, due to which some paintings in them have survived. However, people come into the shelter to light lamps and have a stone block wholly covered with orange vermilion, which they offer prayers (Fig. 6H). The only shelter with stone barricading was Shelter (DGM_RS_19) (Fig. 6I). The top façade stone wall has a geometric pattern painted in red (Fig. 6J). Below the geometric design, a stone piece bearing some red pigment was discovered, which could have been used as a grinding tool for a hard lump of dry pigment (Fig. 6K). The stone was documented and collected as an artifact discovered on the surface during surface collection. Other than the geometric pattern design, two animals were painted, and some paintings were faded. Due to natural causes, a portion of the geometric painting has been washed away.

Shelter (DGM_RS_20) is located on the hill's western side, beneath a fallen block of stone. The paintings here had faded, leaving only a few traces that could be seen with naked eyes. The inscription on Shelter (DGM_RS_21) has yet to be deciphered (Fig. 6L). The non-Islamic indigenous forest groups and Hindus make up the vast majority of the village's population. According to the local shepherd, no one in the village could read or write it, implying that it was either medieval or later contemporary period. All over the shelter, microliths were observed. There were scattered microliths and potsherds on the surface (Fig. 6M).

Local people generally do not visit these sites, as they believe such places are haunted. The area is heavily forested, where numerous wild animals roam (e.g. tigers, bears, leopards, wild boars). Villagers and tourists only come during the village festival (*Jatra*), and they always come in large groups for a short period.

Samnapur (SMN)

Samnapur hill is located next to Digambar hill. The people there have designated it the Samnapur hill due to its natural division caused by the waterfall, although the Samnapur hill is geologically connected to the Digambar hill. The author explored twenty-four new rock art shelters here on the Samnapur hills. Some shelters are located under the fallen stone blocks, especially on the Samnapur hill's waterfall. There are no signs of rock painting at the waterfall's source. There are some empty shelters but no traces of any rock art or archaeological materials.

Shelter (SMN_RS_01) is 50 m long and 21 m wide, with all paintings on one side of the wall and not dispersed around the space (Fig. 7A). Red and white are the predominant colors in the paintings. As a surface collection, microliths and potsherds scattered in situ

were collected. The front wall and ceiling are covered in paintings. Shelter (SMN_RS_02) is a more compact shelter with three paintings visible. Six of the paintings in Shelter (SMN_RS_03) are fading. Shelter (SMN_RS_04) sits next to RS_05 and has four paintings partially covered with a layer of calcium carbonate. There are seventy paintings in Shelter (SMN_RS_05). Yellow and red paintings are superimposed on top of one another. This shelter has a low ceiling. In this shelter, one can only sit or lie down. Some of the paintings in this shelter have been drawn over the calcium carbonate layer, while others have been covered by it. In the shelter, no artifacts were discovered.

Shelter (SMN_RS_06) is a large open shelter with a total of one hundred and five red and white paintings. Animals, human figures, horsemen, warriors, scenes of social activities, and abstract geometric designs are among the paintings (Fig. 7B-D). The heavy vegetation and roots of the larger trees are tearing the floor of this shelter apart. Paintings are superimposed on top of one another, such as the red paintings on top of the white ones. Some white paintings have become muddy white due to exposure and water dripping from the ceiling during the monsoon season. RS_04 is next to this shelter. Due to the dense vegetation on the shelter floor, no artifacts could be seen.

The shelter (SMN_RS_07) is located beneath a fragmented boulder. There are twenty paintings in this shelter. Soot has formed on the painted surface as a result of anthropogenic activities. Microliths can be found throughout the shelter. The shelter next to RS_07 (SMN_RS_08) has paintings and a shelter under a boulder. There are just three paintings visible, and the surface is rapidly disintegrating. There were no artifacts identified in this shelter. Shelter (SMN_RS_09) is similar to RS_08; however, the paintings have survived well due to the concave dip in the roof. The mud nest of the bird covers the paintings. There were no artifacts identified in this shelter. Shelter (SMN_RS_10) is a small niche shelter situated on a hillside with red and yellow paintings on the walls. The rate of deterioration is higher here. This shelter is only big enough for two individuals to sit and rest in it simultaneously. There were no artifacts in the shelter, but a terracotta pot lid and a few microliths were identified near the base (Fig. 7E).

Shelter (SMN_RS_11) is an open wall shelter with paintings and microliths. Although the painting has been washed away due to natural factors, only two paintings have survived and are now hidden behind a layer of calcium carbonate. Abstract geometric designs are depicted in the paintings. Shelter (SMN_RS_12) is similar to RS_11, but at the height of 8 metres, only one visible painting of an anthropomorphic figure has remained. The shelter has been weakened because of the growing vegetation and other natural factors. A cave-like chamber on the other side of the shelter has no traces of paintings or artifacts. Tiger pug-marks can be seen here (Fig. 7F). This area serves as a safe place for large wild animals and is near a water source. Shelters (SMN_RS_13-20) are all shelters under fallen boulders along and on the waterfall stream on the waterfall's periphery. Paintings in the colors of red and white, with numbers ranging from four to eighty, can be found here. Animals, humans, warriors, horsemen, abstract themes, and social activities are depicted in the paintings. Hand palms are painted on some shelters, such as RS_17, while social activities are painted on RS_18, with human figures wearing skirts. Paintings cover the niches of these

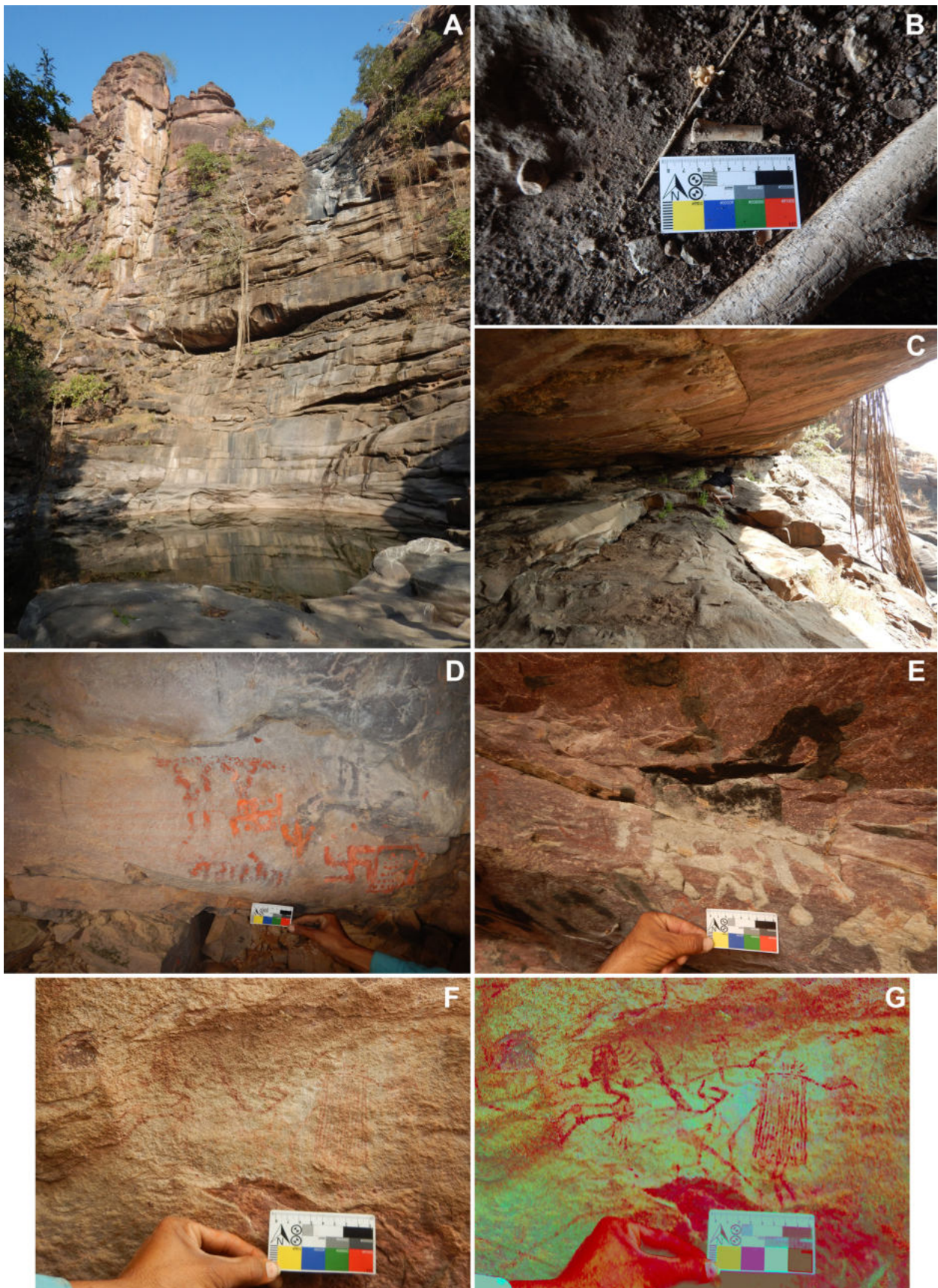


Figure 6. Site Digambar (DGM): A-C) Empty Shelter amidst the waterfall on the hill having archaeological artifacts, Terracota smoking Chillum, view of the empty shelter from the inside; D) Shelters converted to a modern-day God-man praying space and wall painted with recent religious signs and Shlokas; E) Paintings in white pigment turned black due to the soot accumulation on its surface; F-G) S-shaped anthropomorphs with intricate designs painted in the shelter DGM_RS_18.



Figure 6. Site Digambar (DGM): H) A stone block covered with vermilion and terracotta lamps around it; I-K) Shelter DGM_RS_19 with human-made exterior safety walls with stones, geometric design made on the shelter's facade wall, a stone piece found on the surface in the shelter with a lump of red pigment stuck to it; L) Script [Undeciphered] painted in shelter DGM_RS_21; M) Microliths found on site.



Figure 7. Site Samnapur (SMN): A) Long view of Shelter SMN_RS_01; B-D) Various themes painted in colours red, white and superimposed over each other in shelter SMN_RS_01; E) Terracotta lid found in situ; F) Tigers pug-marks near the water source; G) Red ochre nodules found near the shelters and water source.



shelters, and some are painted on all sides due to their accessibility. There are no floor deposits in these shelters because they are near a water source; hence, there are no artifacts. The shelters will be investigated for possible ochre nodules (Fig. 7G), and the results will be presented in subsequent studies. Because of the water and moisture, these shelters are more vulnerable to deterioration. The painted surface is extremely exfoliating, and the paintings would not last long owing to anthropogenic activities like deforestation and forest fire.

Shelter (SMN_RS_21) is an open shelter with forty superimposed red and white paintings on the ceiling and walls. Most red-coloured paintings have turned orange because of the muddy calcium carbonate deposit accumulated over them from the ceiling. Paintings of social activities, honeycomb trees, abstract designs, continuous arch lines, and some warriors can be seen in this shelter. There are potsherds in the shelter but no signs of microliths. This shelter is connected to a cave-like shelter with two entrance and exit openings. There were no traces of paintings or artifacts in that area. They contained the bones of a monkey and cattle that wild animals had hunted (Fig. 7H).

Shelter (SMN_RS_22) is a big, slope-side shelter with seventy red, yellow, and white paintings. Superimposition appears in numerous layers, such as red on white and yellow, yellow on red and white, and white on red. This shelter is painted with a variety of themes. The one that stands out is a warrior decapitating another's head (Fig. 7I-J). The only such depiction found in India is recorded at the Mahadeo Hills in Pachmarhi, Madhya Pradesh (Dubey-Pathak 1995). Paintings can be found in sections of these shelters. One side, for example, has hand palms stamped on the wall, all in yellow (Fig. 7K-L). The red dots are clustered in the central and lower sections of the wall. The wall is covered in animal and tree paintings. Social activities, depicted by huts along the sides of human figures, display their architecture. The colors are solid and thick. Every summer season, wildfires destroy this shelter, either naturally or due to anthropogenic actions. There were no microliths in the shelter, but potsherds were identified in and around it. Shelter (SMN_RS_23) features seven red paintings of a tree with many honeycombs on a single tree and animals surrounding it, as well as a human figure standing a little further away. Every shelter in this region has paintings that are rapidly deteriorating. In this shelter, microliths were identified.

Shelter (SMN_RS_24) is a multi-niche open shelter with multiple niches distributed at regular intervals. It has a length of 34 metres. Around eighty paintings in red and white, which are painted in niches, were recorded and superimposed. Surface sampling of potsherds and microliths was collected and recorded. Compared to potsherds identified in other Samnapur shelters, the potsherds found here were greater. The paintings on this hill are of animals and trees with honeycombs, which are more in numbers in the paintings. Flowers, geometric patterns and abstract designs, social activities, warriors, horsemen, and so on are all examples of this. Soot from the forest fire and calcium carbonate deposits from dripping water from the ceiling had blackened and covered some paintings.

Hoda (HOD)

At Hoda village (*gaon*), two hills are famous for their

names and stories. The first hill is called '*Chudail ki daanth*' or '*Bhootiya gufa*'. The villagers named it after its geological formation, which resembled an open mouth of a witch with two canines extending on both sides on top of the hill. Another reason is that the shepherds and the older locals had seen them having rock paintings in red and white color in the shelters. As mentioned before, the villagers believe that these witches have made the painting with human and animal blood while performing witchcraft. There are only steep ends and no shelters on the way up to the shelter. It was difficult to pinpoint the exact location of the shelter mentioned by the villagers. Shelter (HOD_RS_01) is a large boulder that fell from the top of the hill years ago in the past. It was resting on another boulder, which created a natural shelter like space enough for thirty people to reside in. There are paintings drawn in every possible space (Fig. 8A-B).

However, mainly found on the ceiling and the sidewall surface. Paintings seem mostly from Mesolithic and Historic periods from the types of painting in red, orange, yellow, black, and white. Superimpositions were easily visible. Detailed drawings of animals, anthropomorphic figures, horses, horse riders, trees, monkeys and geometric designs are drawn. The unique painting here was the red pigment splash on the ceiling (Fig. 8C-D). It could be deliberately done as a work of art, or the artist slipped through while painting on the ceiling. The painting's condition seems moderate in a better state because this shelter is not easily accessible, and hardly a shepherd would rest here once in a month or three months. Though this shelter is conserved by nature, it can be further digitally preserved. No artifacts like potsherds and microliths were found on the surface, but that could be revealed in the future through systematic excavations within this shelter. There are more rock shelters on the hill's top, which need to be explored further in the future. The leopard sighting forced the author and the village team to evacuate the area for safety reasons.

The second hill, '*Chikan Patha*', has a shelter, which is very famous in the village and neighbouring village for the Dacoit (*Daaku*) who used to reside here in this shelter. This shelter's location was more difficult to find and pinpoint from the foothill. This shelter (HOD_RS_02) is popularly known as '*Chandi Singh ki gufa*'. To reach here, one needs first to climb up the hill, then go down from the natural stream cut at the edge, and enter this shelter. This shelter is in a safer location regarding safety from animals, and at the top, one could easily see both anthropogenic and animal movements and activities at the foothill. Paintings here are red, orange, yellow, and green in colors mostly painted on the ceiling surface wall. This shelter has the S-shaped group figures painted on the ceiling (Fig. 8E-F). The green painting here is unusual. The scientific analysis would reveal its actual pigment color, binders, and elements for its distinctive green color. The stone's surface is exfoliation because this shelter is near the stream flowing on both sides. Natural features and anthropogenic activities have impacted the paintings in the past. Because the stone surface and the paintings were in bad condition, superimposition was not visible, if there were any.

On the same '*Chikan Patha*' hill, another open shelter (HOD_RS_03) had one painting in its naturally formed niche at the very edge of the hilltop (Fig. 8G-H). There appeared to be two paintings, but after examining the niche on the aD-Stretch android phone software in-situ,

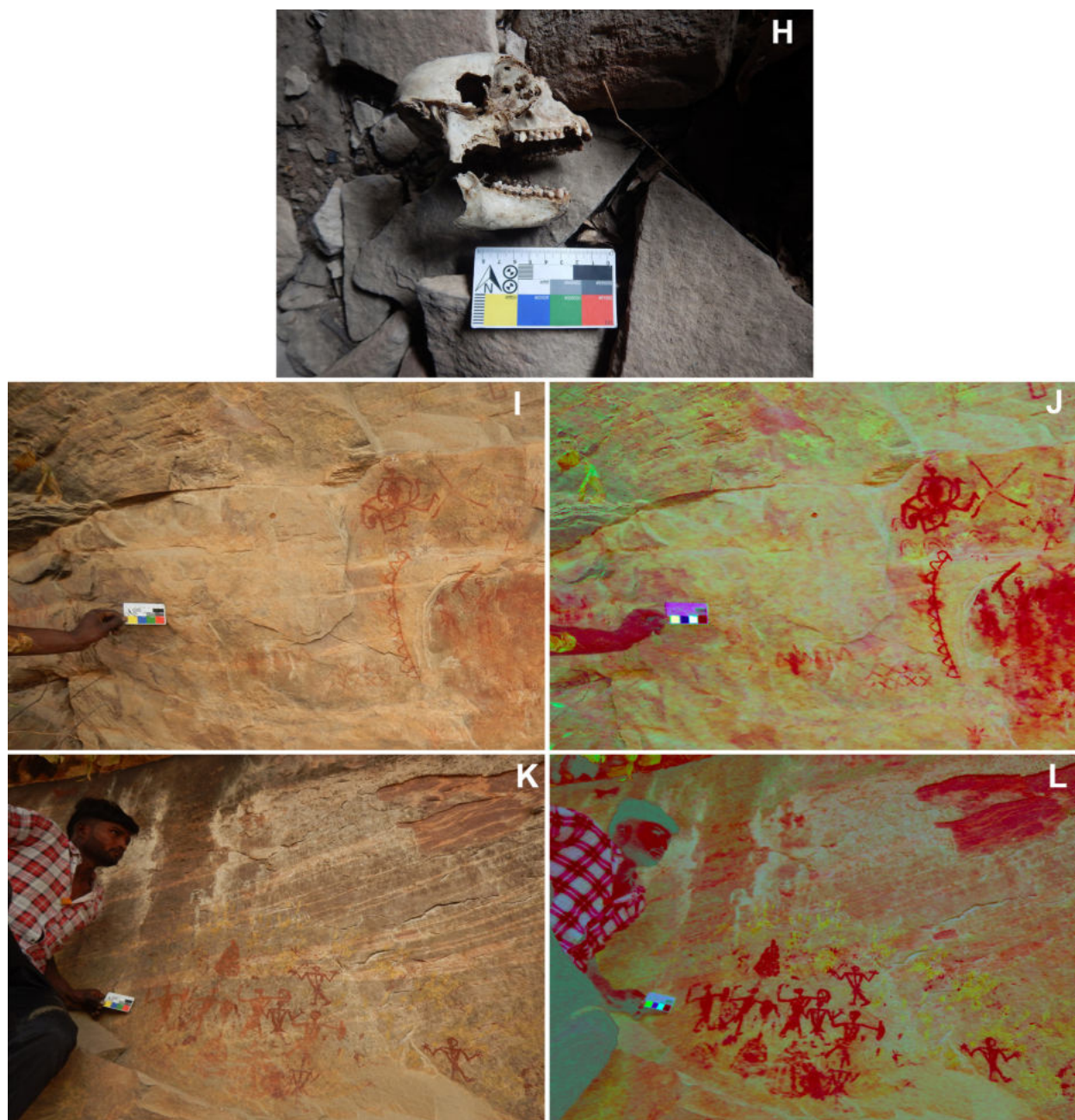


Figure 7. Site Samnapur (SMN): H) Skull remains of a monkey species found in the shelter SMN_RS_21; I-J) A rare depiction of a warrior decapitating the head of another warrior, Image digitally enhanced (YDS) with the help of DStretch software; K-L) Hand palms painted in yellow pigment color, Image digitally enhanced (YDS) with the help of DStretch software.

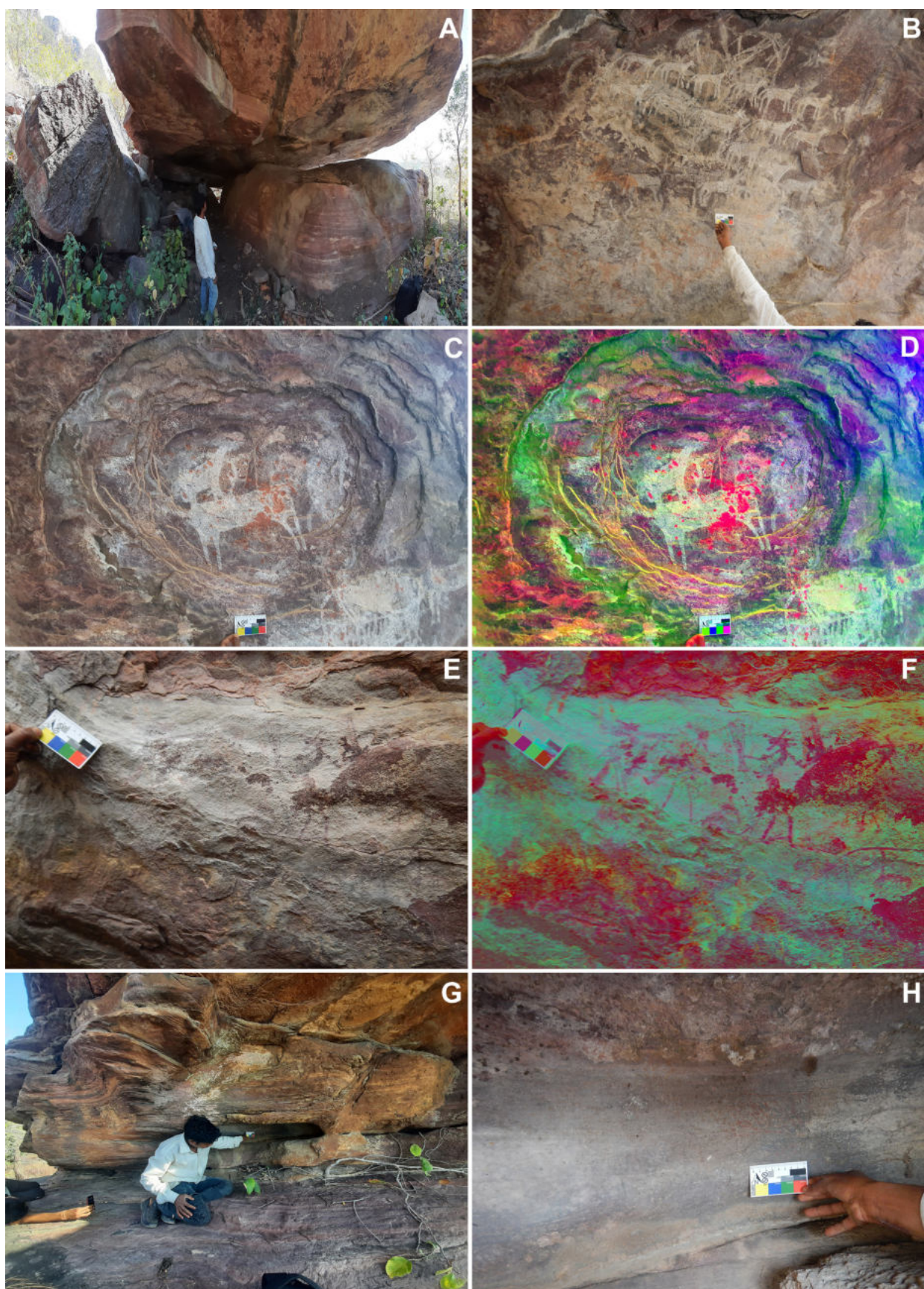


Figure 8. Site Hoda (HOD): A-B) General view of the shelter HOD_RS_01 and paintings in plenty on the ceiling; C-D) Red pigment splash on a white painting, Image digitally enhanced (YDS) with the help of DStretch software; E-F) S-shaped anthropomorphs with intricate clothing painted in the shelter HOD_RS_02; G-H) A small open hilltop shelter HOD_RS_03 with a painting in its niche.



it was determined that the lines were natural rather than painted; therefore, they were considered one. The picture has nearly entirely deteriorated. One or two individuals may lie down to rest in this narrow, exposed rock shelter.

Khidiya Kurmi (KHD)

Two hills were explored, and both are known as '*Khidiya Pahad*'. Twenty-four rock shelters were explored and recorded, but only eleven had rock paintings. There seem to have more shelters on the top, but those were not explored as that would come under tiger reserve, and the area beyond the hill comes under the neighbouring Raisen district. Most of the shelters were easily accessible, while some were very difficult. Also, most of these shelters had cattle bones in them. The carnivore animals would hunt the animals down and prey on them here in these shelters (Fig. 9A-B). Some cattle bones were weeks, months and years old. The shelter (KHD_RS_01) was just some meters above the foothill. Heavily degraded but had some ten paintings with superimposition visible on the surface. The author found potsherds and microliths in situ. Shelter (KHD_RS_02) was above (KHD_RS_01) and was difficult to get in. The condition was almost the same as (KHD_RS_01), but some paintings were better in condition. This shelter had a rectangular patch of red pigment, which was not seen in this area before during the exploration in that whole stretch yet (Fig. 9C-D). It could have been a ground preparation, a surface wash, or a previous drawing cover-up. It could only be confirmed by analyzing the surface under a USB microscope, D-Stretch software, photogrammetry, or Infrared cam-scan. There were animal dropping, suggesting that small animals like porcupines and langur monkeys would reside in this shelter.

Further, the findings were similar at shelters (KHD_RS_03) and (KHD_RS_04), and the conditions were the same for both the stone surface and the paintings. The shelter (KHD_RS_05) was different, like a cavern with a back opening because of the natural water stream inlet. This shelter was deep, but paintings were only found at the entrance. There are fair amounts of paintings, in red, yellow, black and white colors. Superimpositions were also easily visible. The white pigment paintings were thick and were visually looking fresh. Pigment analysis and other scientific analysis would be possible in this shelter. Though conservation would be necessary for this shelter as this shelter is easily accessible, and people could visit and see the paintings. Anthropogenic activities like burnt bonfires and littering are seen here in the shelter.

Because of illegal activities and easy access to such places, some shelters have lost their paintings, while others have deteriorated. The shelter (KHD_RS_06) has a low ceiling with cattle bones and porcupine quills. This shelter had paintings at the entrance and might have had more inside, but it wasn't easy to see through our naked eyes due to the lack of natural light. The shelter (KHD_RS_07) had a smooth floor surface and was big enough for fifteen people to reside. Here the ceiling might have had paintings but was not visible. While on the wall, there was a painting of a tigress and her cubs (Fig. 9E-F). The color of the horsemen was also very thick and looked saturated. Shelter (KHD_RS_08) is an open shelter, and only two paintings of the dears were visible. These were also in the process of fading away soon. Similar issues were also noticed in shelters (KHD_RS_09, 10 & 11). The

common problems in these shelters on the Khidiya Pahad hills are that the stone is deteriorating. The surface is exfoliating and degrading due to anthropogenic illegal and other day-to-day activities, animal rubbings and vegetation. Many potsherds and microliths are found at almost all shelters (Fig. 9G-H).

As per the author's conversation with the local villagers nearby, they had seen a lot of these rock painted shelters when they were younger. They never used to enter the jungle and these shelters because of the stories of the *Chudails*. However, villagers would now go in for the various day to day activities ever since the Khidiya Mata temple was constructed near the foothills. They also added that the newer generation has stopped entering these places because of the recent introduction of new tigers in the jungle that was an addition to the near Tiger Reserves by the forest department/government. They would come face to face with humans at any time, unlike the actual indigenous jungle tigers, which would stay in the wilderness and would only come near the village searching for water and easy food like cattle or dogs during the summers.

The author also explored and assisted at Chikli/Chandla Kalan site to explore and document new rock art shelters there. This site falls between Hoda and Khidiya Kurmi. On the other side, in the south of the River Narmada, in the Gondwana ranges, the author explored Mandikhoh and Morpani. This exploration was necessary to answer the author's research questions to understand the geological setups, conditions, environments, past people's movements, the types, themes of the paintings, and superimpositions (Poojari and Chauhan 2020).

Owing to tigers' sightings on these sites and the novel Covid-19 pandemic, the site's exploration was temporarily halted.

Discussions and future plans

The hills on which the rock paintings are painted in this region belong to the Vindhyan formation. The quartzite rock quality is better here, unlike the Gondwana ranges in the south. However, the rock is deteriorating at an alarming rate due to natural and anthropogenic effects. The rock surfaces are smoother and more suitable for painting. The author has been exploring and documenting rock art sites from the Vindhyan ranges and the Gondwana Ranges. This will aid in the comparative study of the paintings of both ranges, which will aid in understanding the geological variation, shelter selection and occupancy, types of paintings and raw materials used, themes, biodiversity of and near the shelter, and so on. Here the author has only come across petrographs, i.e. rock painting, and no traces of petroglyphs or geoglyphs yet. Paintings are in red, orange, yellow, black, white and even green in color. There are variations in the red color from darker to lighter shades. Some may have altered chemically from the original colors when applied from the ochre nodules, similarly for color white. They may have come from different sources in another region.

The stone holding and root grip at the hill slopes on the Vindhyan ranges have become loose from beneath the surface due to anthropogenic activities such as deforestation and stone mining. Due to this, the shelters are in dilapidating conditions at and near the hill slope at a higher rate. While conducting the village surveys, the older generation of the villages brought to the author's

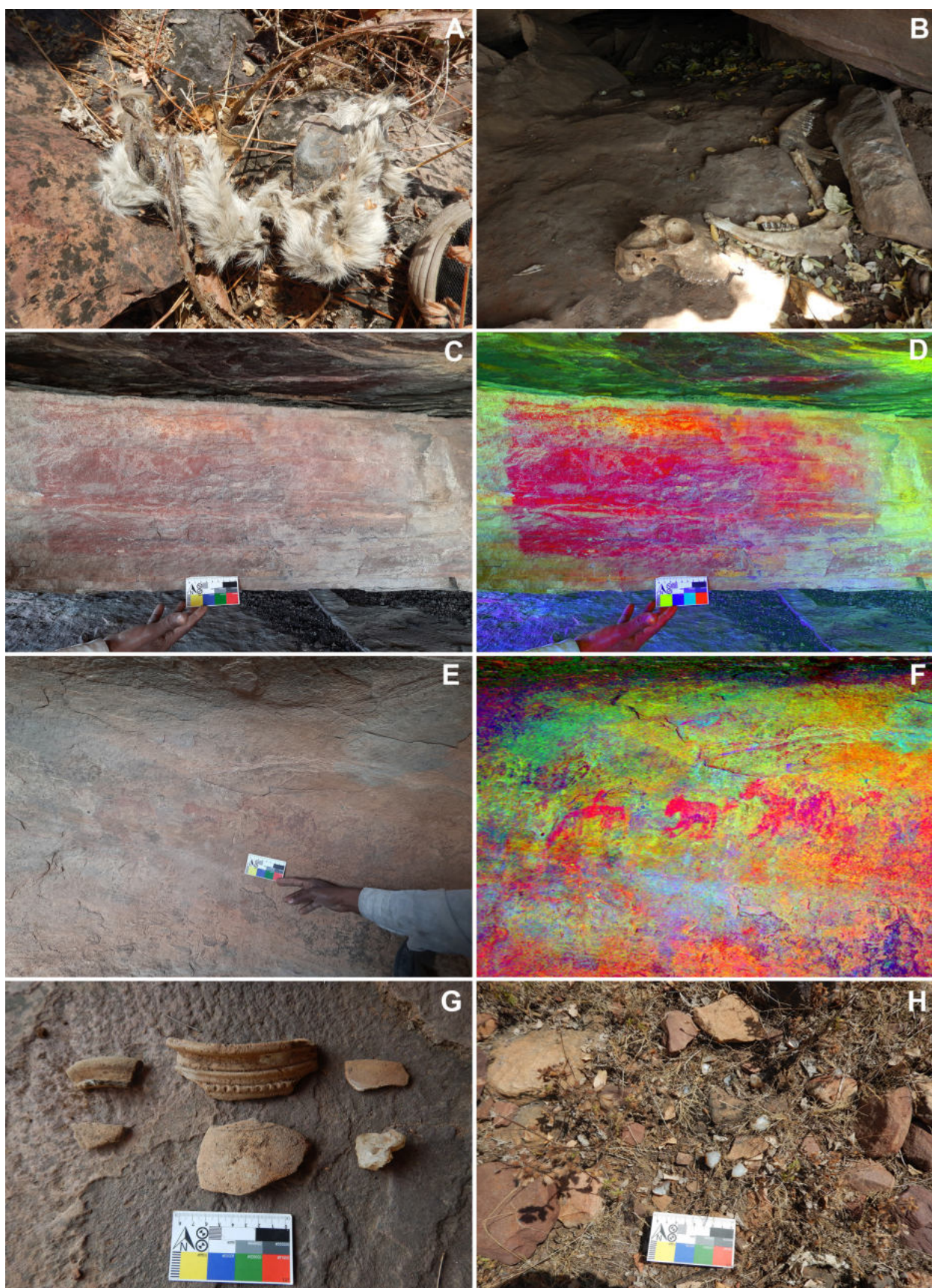


Figure 9. Site Khidiya Kurmi (KHD): A-B) Prey of a wild animal found in the rock art shelters; C-D) Large red rectangular patch painted in red, Image digitally enhanced (YDS) with the help of DStretch software; E-F) Painting of a tigress and her cubs in the shelter KHD_RS_07, Image digitally enhanced (YDS) with the help of DStretch software; G) Terracotta potsherds found in the rock art shelters; H) Microliths found in plenty in and around the rock shelters.



notice that there used to be many more rock paintings when they were in their childhood days. In addition, the exposure increases due to cutting trees and vegetation, and the stone is deteriorating faster. The recent development near the foothills adds more dust and dirt to the rock surface, affecting the painting layer during the heavy humid and monsoon seasons.

Need more scientific research to be done here in this region. There is a need for proper systematic excavation, digital recordings, pigment collection and dating them after analysis if any organic compounds are traced in them. However, based on the archaeological evidence of the microliths on the sites, only the tools can be dated, not the paintings, unless tools are found with the pigments in the same stratigraphy layer or traces on the microliths. However, this microlithic technology is known to extend to at least ~48 Ka and ~45 Ka (Mishra et al. 2013; Wedage et al. 2019), respectively and continues in several Iron Age contexts (Wedage et al. 2019) in the South Asian context. It is also notable that the earliest rock art in South Asia has now been dated to ~45 Ka and includes handprints and hunting scenes (Aubert et al. 2019). Based on preliminary observations, superimposition patterns appear to broadly follow patterns observed at other such sites in central India, such as Bhimbetka, i.e. Mesolithic, Chalcolithic, and Historical, within this sequence (Mathpal 1976, 1984). Paintings from all three periods appear to be present based on style and subject matter in the study area. Caution should be taken when assigning relative chronology based on such subjective parameters in the absence of absolute dates. For example, if some hunter-gatherer groups maintained stylistic consistency overtime periods, a painting that appears Mesolithic in subject matter, style, and color might be much younger than anticipated (Poojari and Chauhan 2020).

It is essential to register and document the majority of shelters at different levels to document and conserve them. Since not all pigments seem to be polluted, and these paintings will be lost soon, the scientific study of the pigments (see Shaik 2015) appears promising and necessary. Based on the themes, the paintings appear to be from different periods, and many are superimposed. Monochrome stick figures to the following Historical era figures of a horseman can be seen in this region. Most animals and birds are the most famous paintings in the study area, accompanied by warriors and other human figures. Geometric/abstract figures, x-ray figures, scenes of social activities, and hunting scenes are the least common/frequent styles. There are more hills in the region with shelters that will be explored and documented in the future. At the same time, some are protected as part of the Tiger Reserve. According to the villagers, the Gondis and Bhils, who live deep within the forest, painted rock art. While some, from Chachmau to Khidiya Kurmi, believe that *Chudails* - the witches - drew these paintings from the blood of the people or animals they had haunted in the area.

How to minimize the problems on the site? Many studies have been conducted in order to preserve our rock art heritage. Around the world, there are some preliminary works on the conservation and preservation of rock art. Unfortunately, with the exception of Bhimbetka, a World Heritage Site, and Adamgarh, both in Madhya Pradesh, there has been no significant effort in India. Although there has been a lot of work done on historical sites such as the Ajanta caves in Maharashtra, they are

wall paintings. Historic wall paintings are created and then painted on a prepared surface. This wall painting is much younger when compared to the thousands of years old rock art. The only way to study them on common ground is through pigments and the very basic layer, i.e. the characteristics and features of the stone. Aside from the stones and pigment, studying the biosystem surrounding these sites is equally important for developing effective conservation, preservation, and protection measures. Another critical aspect is to reduce major illegal anthropogenic activities such as stone and sand mining, deforestation (including tree cutting) and forest fire control.

The rock art shelters are in poor condition, and some of them are in desperate need of restoration and protection for future generations. The younger generations in the surrounding villages are unaware of the rich cultural treasure that exists nearby. As a result, public archaeology, associations with ethnic groups for preservation, site museums, digital documentation and mapping, the inclusion of the subject in the local school and college syllabuses, and other modern methods for safeguarding the heritage may be used to conserve and preserve it. Several historical sculptures in and around the site, such as the hero-stones and Sati-stone, indicate an old route that people have preferred due to its geological setup and other natural sources, at least since the Mesolithic period, if not earlier. These historical sculptures must be documented for further research into this period.

Future studies will include additional explorations and documentation in the study area (Vindhya and Gondwana Hill Ranges) as a long-term research goal of the Narmada Basin Paleoanthropology Project (NBPP). The rock art sites discussed in this paper will be compared to other known and new sites in the area, some of which have only recently been discovered. Following up on this preliminary study, additional tasks include accurately counting all rock art images using D-Stretch software, exploring spatial patterns of specific themes between different shelters, quantifying morphological parameters and styles, interpreting painting behaviour, and comparing with other regional rock arts, and pigment collection. Photogrammetry and high-tech imaging such as 3D documentation; ethnoarchaeological studies are also possible. Propose possible conservation strategies, then publish and disseminate them at various levels.

This is a preliminary report on the rock art sites that have been identified and reported to date. In the future, the areas that could not be surveyed (due to wild animals and the Covid pandemic) would need to be checked. Only the front zone of the Vindhyan Range was studied, not sites deep inside the forest.

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El Dr. Vishnu Shridhar Wakankar padre de los estudios rupestres de la India



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