

ROCK ART OF THE VINDHYAS: AN ARCHAEOLOGICAL SURVEY

**DOCUMENTATION AND ANALYSIS
OF THE ROCK ART OF MIRZAPUR
DISTRICT, UTTAR PRADESH**

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“Today, it is the accepted business of the discipline of archaeology to interpret human pasts, and in the process, to contribute to the construction of memory for contemporary societies.”

(Van Dyke and Alcock, 2003, 1)

Contents

Acknowledgements	ix
Glossary	xi
Chapter 1 Introduction	1
1.1 Introduction.....	1
1.2 The archaeology of Mirzapur	1
1.3 The geography of Mirzapur District.....	9
1.4 Summaries.....	19
1.5 Conclusion	20
Chapter 2 Methodology.....	21
2.1 Introduction.....	21
2.2 Previous research	21
2.3 Colonial archaeologists.....	23
2.4 Post-colonial archaeologists	39
2.5 Sampling strategy	40
2.6 Literature survey	41
2.7 Documenting rock art	43
2.8 Conclusion	43
Chapter 3 The Field Survey	44
3.1 Introduction.....	44
3.2 Field survey strategy.....	44
3.3 Our archaeological survey.....	45
3.4 Conclusion	50
Chapter 4 Discussing the Rock Art Data	54
4.1 Introduction.....	54
4.2 Rock art at Wyndham Falls	54
4.3 Rock art at Likhaniya Dari	59
4.4 Rock art at Chuna Dari.....	63
4.5 Rock art at Morhana Pahar	75
4.6 Rock art at Lekhania Pahar	86
4.7 Rock art at Mukkha Dari.....	89
4.8 Conclusion	95

Chapter 5 Post-depositional Processes and Rock Art	96
5.1 Introduction.....	96
5.2 Post-depositional processes	96
5.3 Types of post-depositional processes.....	99
Contemporary 'mock' art	99
Animal droppings, rubbing and use	99
Re-use of Vindhyan rock shelters	101
Bird nests.....	101
Thin-film Silica formation.....	103
Calcite formation.....	103
Wind action.....	105
Rain weathering	105
Graffiti	106
Algae, Lichen, and Moss.....	106
Termite infestation, tourist campfires and decomposing rock.....	106
Plant overgrowth.....	108
Thermal weathering of paint.....	110
Water throwing	110
Scratching, bruising and battering	112
Campfire smoke	112
Rock fall and ceiling collapse	112
Mining and quarrying.....	115
Alteration of site-structure	115
5.4 Conclusion	115
Chapter 6 Analyzing Chronology	117
6.1. Introduction.....	117
6.2 Relative chronologies	117
6.3 Our work: chronology.....	124
6.4 Conclusion	127
Chapter 7 Analyzing Style	128
7.1 Introduction.....	128
7.2 Our interpretation	128
7.3 Approaches to the study of style.....	131
7.7 Conclusion	139
Chapter 8 Interpreting Function.....	140
8.1 Introduction.....	140
8.2 The function of Vindhyan rock art.....	140
8.3 Vindhyan rock art as a local tradition of art	141
8.4 Rock art and ethnic identity	144
8.5 Conclusion	150

Chapter 9 Archaeological Interpretation	151
9.1 Introduction.....	151
9.2 Vindhyan ethnoarchaeology	151
9.3 Some ethnoarchaeological correlations.....	158
9.4 Conclusions	162
Bibliography	164
Index	170

List of Figures

Figure 1. Landscape at Chuna Dari	2
Figure 2. Landscape at Likhaniya Dari	3
Figure 3. Landscape at Morhana Pahar	4
Figure 4. Landscape at Wyndham Falls.....	5
Figure 5. Landscape at Mukkha Dari	6
Figure 6. Landscape at Lekhania Pahar.....	7
Figure 7. A symbolic representation at CAR 10, Morhana Pahar.....	9
Figure 8. A direct representation of a female figure at CAR 8, Morhana Pahar top right hand corner.....	10
Figure 9. Panel at MKD 2 showing some awkwardly depicted female figures wearing skirt-like apparel, kneeling in front of a Bubalus figure.....	10
Figure 10. Indirect representation of feminine gender through laborious designs.....	11
Figure 11. Rainfall pattern based on raw data from Mirzapur District Gazetteer, 1972.	19
Figure 12. Carleyle's Tool-drawings. Source: Sieveking, 1960.....	32
Figure 13. Cockburn's sketch of tool-bearing horizons, Mirzapur	33
Figure 14. Plan and section of Likhaniya Dari and Chuna Dari Shelters (Ghosh 1932).....	34
Figure 15. Photograph of Rock Paintings at Likhaniya Dari (Ghosh 1932) and a view of this shelter from the opposite bank of river Garai.....	35
Figure 16. View of Chuna Dari 1 (CHD 1) (Ghosh, 1932)	36
Figure 17. Water-colour reproduction of paintings at Chuna Dari which are now invisible due to overlay of modern graffiti (Ghosh, 1932).....	37
Figure 18. Water colour reproduction of rock paintings now submerged under graffiti at Chuna Dari 1 and 2 sites (Ghosh, 1932)	38
Figure 19. A combination of rock paintings at Likhaniya Dari and Chuna Dari (Ghosh, 1932)	38
Figure 20. Photographs of artefact finds of M. Ghosh (1932)	39
Figure 21. Close-up view of WYN 1 paintings showing two large animal figures and one small one in front of each.....	60
Figure 22. Close-up view of the faded dancing human figures at WYN 1.	61
Figure 23. General view of the left portion of the WYN 3 painted site, on the Wyndham River, showing unresolved painted designs, over younger Calcite deposits. Some previous defacement through modern graffiti is also visible.....	61
Figure 24. Broad view of the right portion of the WYN 3 painted shelter showing the image of a dog superimposed over calcite	62
Figure 25. An image of a fantastic animal surrounded by human figures at WYN 3	62
Figure 26. More figures within the hollows of WYN 3 shelter in a better state of preservation and complete absence of calcite of any sort.....	63
Figure 27. General view of painted panel at WYN 4-1 painted shelter.....	66
Figure 28. View of WYN 4-1 in which a faded human figure is visible.....	66
Figure 29. Full view of the arrow crossfire painted panel at WYN 4 - 2	67
Figure 30. Close-up and magnified view of the group at right of this thematic panel painting at WYN 4 - 2	68
Figure 31. Close-up view of arrow-crossfire panel at WYN 4 - 2.	68
Figure 32. Human figures at the left side of the thematic panel at WYN 4 - 2. Body shapes and apparently dresses amongst these figures are very different from the human figures depicted on the right side of this thematic panel.....	69
Figure 33. The main panel at Likhaniya Dari Painted Shelter (LKH 1) showing the vertical painted wall.....	69
Figure 34. Closer view of the main panel here shows the stupa figure.....	70
Figure 35. A possibly upper palaeolithic abrasion petroglyph and painted panel at the bottom right corner of the Likhaniya Dari (LKH) painted panel.	70

Figure 36. Natural corrosion visible looking to the right hand sidewall of CHD 1 from this painted panel	71
Figure 37. Content of the new panel at CHD 1. A group of armed soldiers on the march, foot soldiers, horse riders, elephant riders, pitcher and water bearers	71
Figure 38. The poor state of conservation of this painting.....	72
Figure 39. Stylistic similarity of body shapes of human figures, and hair-styles, here with that at other sites	72
Figure 40. A view of figures painted over the calcite on the right hand margin of this painting ..	73
Figure 41. Faded paintings on the ceiling towards the right hand margin of CHD1 cave.....	73
Figure 42. Various types of deer depictions, CAR 1.....	78
Figure 43. Abstract designs at CAR 2 shelter	78
Figure 44. Human figures engaged in some activity at CAR 3 shelter	79
Figure 45. Paintings at CAR 4, hopelessly degraded paintings from water – throwing and decomposing basal rock.....	79
Figure 46. <i>Axis unicornis</i> or Barasingha figure at CAR 5 shelter	80
Figure 47. More abstract drawings or children's doodles at CAR 5	80
Figure 48. Close-up of <i>Axis quadricornis</i> or chowsingha deer depiction at CAR 6	81
Figure 49. White paintings of three deer superimposed upon a red painting of a man on an elephant at CAR 7. The hind leg and tail of the third deer is visible at the right hand margin of the panel.....	81
Figure 50. Closer view of Figure 49 showing the second deer figure	82
Figure 51. Black paintings, designs, CAR 7.....	82
Figure 52. Human and animal figures at CAR 7. Animal figure is probably <i>Bubalus bubalis</i>	83
Figure 53. Sole Female Figure Image at CAR 8	83
Figure 54. Close-up of design at CAR 9.....	84
Figure 55. Dancers at CAR 9	84
Figure 56. Human activity depiction at CAR 10, content is unresolved.....	85
Figure 57. Faded red ochre paintings at CAR 11.....	85
Figure 58. A wide-angle view of this panel at CAR 12	86
Figure 59. The panel at CAR 12 rock hollow adjacent to CAR 11 showing a yellow painting of an elephant possibly being hunted by numerous human figures also painted in yellow surrounding this elephant. Superimposed is a red painting showing a horse rider possibly holding a shield and a sword.....	87
Figure 60. Close-up view of the hunters and the elephant	87
Figure 61. Faunal depictions on the ceiling of LKHPHC1. A speared nilgai (<i>Boselaphus tragocamelus</i>) with a practice drawing of the final image to its right	91
Figure 62. Drawing practice? Adjacent outline figure	92
Figure 63. Male and female <i>Axis axis</i> in rut LKPHC-C1.....	92
Figure 64. Complex social imagery LKPHC C-2	93
Figure 65. Paintings at a height. The earlier panel at left at MKD 2	94
Figure 66. The later panel at right at MKD 2	94
Figure 67. Contemporary rock art at CAR 9, Morhana Pahar	100
Figure 68. Cattle-dung on CAR 5 floor	100
Figure 69. A makeshift shrine at Panchmukhi rock shelters.....	101
Figure 70. Daurica hirundica nest at Wyndham 3	102
Figure 71. A Daurica hirundica mud nest at CHD 1	102
Figure 72. Thin film silica at MKD 2	103
Figure 73. Calcite deposit over an old painting at Wyndham 3.....	104
Figure 74. Paintings over calcite at Wyndham 3.....	104
Figure 75. Morhana Pahar CAR 9, Surface entirely exposed to wind action	105
Figure 76. Thin-film silica deposit over rock paintings at CAR 9, Morhana Pahar	106
Figure 77. Graffiti in black over Likhaniya Dari Panel	107
Figure 78. Organic patina around paintings at WYN 1.....	107
Figure 79. Termite runs at CHD 1.....	108
Figure 80. Corroded base of CHD 1 shelter	109

Figure 81. Wasp-nest on a painted figure at CHD 1.....	109
Figure 82. Plant overgrowth at WYN 4-1 and 2	110
Figure 83. Peeling of paint from an open-air painting CAR 12 Morhana Pahar	111
Figure 84. Modern calcite deposit over animal figure at Wyndham 3 arising from water- throwing.....	111
Figure 85. A badly bruised panel at Chuna Dari CHD 1	112
Figure 86. Graffiti, termite-runs and campfire-smoke at CHD 1 shelter.....	113
Figure 87. Ceiling collapse leading to hindered viewing of rock art panel at CHD 1	113
Figure 88. Heavily weathered sandstone at WYN 1	114
Figure 89. Debris at CAR 8, Morhana Pahar	114
Figure 90. The consequences of Patia and related mining visible in the Sukrit Range.....	115
Figure 91. High-Tension Grid wires situated on Morhana Pahar. View from CAR 12	116
Figure 92. Suspected Upper Palaeolithic painting from Morhana Car Group II – CAR 14 shelter	117
Figure 93. Mesolithic paintings from Morhana Pahar CAR Group II – CAR 8	118
Figure 94. Neolithic paintings from Morhana CAR Group II – CAR 10.....	119
Figure 95. Chalcolithic paintings from Morhana Pahar CAR Group – II – CAR 10 shelter.....	119
Figure 96. Iron Age painting superimposed over Upper Palaeolithic panel at CAR – 14 Shelter.	120
Figure 97. Late historical possibly even medieval rock paintings at CAR 8 Shelter	121
Figure 98. Modern period paintings from CAR 10 Shelter	122
Figure 99. WDRB calcium carbonate sampling surface for maximum age determination using U-Th Dating at WYN 3. (14.0995+ 0.487 – 0.4953 ka BP). Photo courtesy R. Banerjee	122
Figure 100. WDRB 2 calcium carbonate sampling surface at Wyndham 3 (WYN 3) for minimum age. (13.0895 ± 1.2348 ka BP). Photo courtesy R. Banerjee	123
Figure 101. WDRB 3 calcium carbonate surface sampled for minimum age through U-Th dating at WYN 3 Sites. (12.1428+0.3927 – 0.3981 ka BP) Photo courtesy R. Banerjee.....	123
Figure 102. WDRBAi calcium carbonate sampling surface for maximum age using U-Th dating at WYN 3 Site (no age obtained Isochron failed). Photo courtesy R. Banerjee	124
Figure 103. WYN 4-2. Probably a prepared surface.....	135
Figure 104. WYN 4-2. Smoothness of the painted surface suggests that it was prepared.....	135
Figure 105. Lihaniya Dari. Rock art image incised and inlaid with paint	136
Figure 106. Earliest period human figures depicted by joining two inverted triangles at WYN 3	136
Figure 107. Pure Foraging. Likhaniya Dari panel showing a blackbuck deer and some abstract designs	146
Figure 108. Foraging-farming related depictions at Mukkha Dari MKD 2	147
Figure 109. Foraging for birds and small mammals by trapping at Wyndham 3	148
Figure 110. A herd of goats at Morhana CAR 10 shelter suggesting pastoral activity.....	148
Figure 111. Rock art depiction at Wyndham 4, which suggests inter-group conflict over territory ...	149
Figure 112. Superimposed later figure at Morhana CAR 12, suggests symbolic appropriation of territory.....	149
Figure 113. Pastoral cowshed at Bhaldaria.....	157

List of Maps

Map 1. Google Earth Image of the Wyndham Study Area. Source: Google Earth.	12
Map 2. Map of Mirzapur showing its rock-art sites. Source: Based on Tiwari (1990, 4)	13
Map 3. Drainage and Landforms of Mirzapur, Sonbhadra and adjoining Districts. Source: Based on Ansari (2007, 3).....	24
Map 4. Drainage of Mirzapur, Sonbhadra and adjoining districts. Source: Based on Ansari (2007, 4)....	24

List of Tables

Table 1. Map distances based on Figure 4 between rock art groups in the study area.....	12
Table 2. Painted Rock Shelter Sites known in 2009	46
Table 3. List of sites of our survey	46
Table 4. Previous and current research	47
Table 5. Details of Our Exploration from 2009-2014 (1).....	51
Table 5. Details of Our Exploration from 2009-2014 (2).....	52
Table 5. Details of Our Exploration from 2009-2014 (3).....	53
Table 6. GPS based locations of Painted Rock Shelters at Wyndham Falls	55
Table 7. GPS based locations of Painted Shelters at Chuna Dari Cave.....	74
Table 8. GPS based locations of Painted Rock Shelters at Morhana Pahar Group I shelters	74
Table 9. GPS based locations of Painted Rock Shelters at Morhana Pahar Group II shelters	74
Table 10. GPS based locations of Painted Rock Shelters at Morhana Pahar Group III.....	75
Table 11. U-Th and ICPMS dates of Calcite deposits over and below rock paintings at Wyndham 3 (WYN 3)....	121
Table 12. A. C. Carlleyle Tool Collection from Gharwa Pahari (modern location of Gharwa Pahari is not known)	154
Table 13. A. C. Carlleyle Tool Collection from Likhaneya Pahar (Probably the Modern Lekhania near Morhana Pahar).....	154
Table 14. A. C. Carlleyle Tool Collection from Baghe Khor or Bagai-Khor (in the Morhana Pahar Shelter cluster)	154
Table 15. A. C. Carlleyle Tool Collection from Gharido Pahari (modern name and location not known)	154
Table 16. A. C. Carlleyle Tool Collection from Bharkachcha or Barkacha, in the general area of Wyndham, however, whether from Wyndham Falls locality is not known. Notable are artefact classified as Iron-Ore Fabricators.....	155
Table 17. A. C. Carlleyle Tool Collection from miscellaneous locations in Mirzapur and Banda..	155
Table 18. A. C. Carlleyle Tool Collection from Morhana Pahar	156
Table 19. M. Ghosh Tool Collection from Likhaniya Dari. Source: Ghosh, M. 1932.	157

Acknowledgements

Rock paintings and petroglyphs are a record of human memories. No doubt, this function defines in essence all archaeological objects. Yet some objects such as tools, beyond their symbolic value, are clearly fashioned for their utility. How does rock art as an object fashioned by human hands then differ from tools? What utility does it have beyond its symbolic value? The Vindhyan corpus of rock paintings has provided us with a very valuable opportunity to be answering such questions as part of our work towards a research project entitled *The Documentation and Analysis of the Rock Art of Uttar Pradesh with Special Reference to the Rock Art of Mirzapur, Uttar Pradesh*. My foremost thanks in this regard is to the Indian Council of Historical Research, hereafter the ICHR or ICHR, which has provided a comfortably funded research project grant F.No.1-1/2009-ICHR (GIA-III) RP dated 7th August, 2009, utilized over two years, (2009-2011). At the Banaras Hindu University, I wish to thank the Vice-Chancellor Professor G. C. Tripathi, and the Registrar's Office (especially Dr. K.P. Upadhyaya) for having taken up the task of project administration and for having carried-out lengthy correspondence with the funding agency, the Directorate of Archaeology, Uttar Pradesh, the Archaeological Survey of India, and the Forest Department.

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Over a disparate set of seasons and field visits, to compensate for these, we took some 3,000 digital photographs of rock art, at six varied locations: Wyndham Falls, Likhaniya Dari, Chuna Dari, Morhana Pahar, Lekhania Pahar, and Mukkha Dari. The video documentation is also considerable. The analysis of all of these bits of data has meant an enormous number of man-hour inputs. We have transferred much of this data to the Indian Council of Historical Research, the funding agency of this project. The other donees have been The Archaeological Survey of India, The Directorate of Archaeology, Government of Uttar Pradesh, the Forest Department of Uttar Pradesh, the National Cultural Conservation Laboratory, Lucknow, the National Archives of India and the National Museum, Delhi.

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Glossary

Abrasion petroglyph: This is a type of rock art produced by gouging, bruising, or pecking the rock surface with pieces of rock to produce a desired image, n some cases, filled in with paint.

Accelerator Mass Spectrometry: a method of direct or precise dating of rock art based on carbon content of paint material.

Aeolian: Pertaining to dust and pollen carried and deposited by wind action.

Artefacts: Archaeological tools, pottery, bone, copper, iron-implements and any other material object or objects usually found in archaeological contexts.

Bada: Cattle pen made by Agro-Pastoralists of the Vindhyan Region for seasonal cattle keeping

Barasingha: *Cervus duvaucelli*

Barking Deer: *Muntiacus muntjak*

Black painting: Made from wood-ash mixed with a suitable fixative. As at Morhana Pahar, usually hand imprints are the main subject.

Blackbuck: *Antelope cervicapra*

Calcite: Natural calcium carbonate usually whitish in the form of thin, water-borne, deposits over rocks and rock paintings.

Chinkara: *Gazella benetti*

Chital: *Axis axis*

Chowsingha: *Tetraceros quadricornis*

Cluster: A group of rock art sites, which are sufficiently co-extensive and may be considered a part of a functional unit for prehistoric human activity.

Collage: When successive groups use the same rock surface for rock art depictions, the juxtaposed images begin to look collage-like. However, this arises from a lack of space for paintings.

Cupule: Minuscule cup like marks on rocks purportedly made in the earliest stages of rock art production

Dari, Duree, Durree: From Persian Term *Darra*. Gorge associated with Waterfall

Digital Media Photography: Pertaining to the use of digital media (still and video) for recording of rock art.

Fluvial: Pertaining to riverine activity of leaving alluvial deposits

Function: The purpose of rock art or why was it made.

Haemetite: An oxide of iron (ferric oxide) which occurs as pellets and nodules on the soil surface and is the most widely used medium for rock paintings.

Harin: Hindi for Deer

Hog Deer: *Axis porcinus*

Kankar: Calcrete, Calcite

Koh or Khoh: Hindi for Cave

Lacustrine: pertaining to lakes or caused by lakes, of lakes.

Lekhania, Likhaniya, Leckunia, Lekhunia, Likhaneya: From Hindi *Likh* or to Write or Writing. Common local term of reference for Rock Paintings all over Mirzapur

Location: The actual geographical place of a rock art site, in relation to geomorphic features, such as forests, waterfalls, rivers, streams, and plain important for subsistence activity. In this work, also the GPS location of a rock art site.

Mouse Deer: *Moschus moschiferus*

Nilgai: *Boselaphus tragocamelus*

Outlines: A method of rock painting in which the intended figure is in outline, with no in filling of paint, or any other design.

Pahar: Hill, Mountain

Paintings at a height: This is a type of rock paintings, which occur at abnormally high locations such as at Wyndham 1, Mukkha Dari 1 and 2 as well as Chuna Dari 1 and Likhaniya Dari. These were possibly made while descending or ascending cliffs in pursuit of honey.

Pleistocene: The last part of the Quaternary period when atmospheric cooling ceased and global temperatures rose high enough for the current climatic regime to be noticeably different which is called the Holocene.

Pluvial: Pertaining to rainfall.

Purple Paintings: Found mainly on the Morhana Pahar, where hematite pellets and nodules are in great profusion.

Quartzite: Commonly found rock type of Mirzapur and Sonbhadra Districts.

Recording: Systematic documentation of the types of features of an archaeological site including its provenance.

Red Paintings: Paintings executed entirely in red ochre paint material generated by rubbing pellets or nodules of freely available haemetite with water or any other fixative like animal fat.

Rock Art Site: A rock art site is an archaeological site that most usually has rock paintings and engravings, but not necessarily archaeological artefacts other than rock art.

Rock Bruising: Pecked and painted deer figures found in CAR 7 cave shelter on Morhana Pahar

Rock paintings: These are paintings made by the use of such material as haemetite, quartz crystals on rock surfaces and depict a variety of subjects ranging from recognizable ones such as human, animal, bird and other material culture objects or designs as well as unrecognizable ones usually labeled as abstract.

Sambar: *Cervus unicolor*

Sandstone: A common type of rock available in great quantities in Mirzapur and Sonbhadra districts.

Silhouette: A method of rock painting in which the image is completely in-filled with paint.

Style: The way a rock art images is executed making it distinct from those elsewhere. Also suggests the time during which it or set of images was probably made.

Superimposed paintings: A type of rock art in Mirzapur where a new rock art image has been painted on an earlier painting, in part or full.

Survey: Field-based estimates of the archaeological potential of a given area for tools or rock art.

Uranium-Thorium: A method of direct dating the siliceous content of calcareous deposits on which rock paintings are executed, or which are deposited after the event.

White Paintings: Paintings executed entirely in a white paint, made from crushed quartz crystals.

Yellow Paintings: Rare ones these, are executed in a yellow paint which is likely to be upper palaeolithic.

Chapter 1

Introduction

1.1 Introduction

This book presents and analyzes primary data from rock art sites of the Vindhyan region collected during our survey of the region as part of a research project starting in November 2009. In this opening chapter, by providing a view of its geography and archaeology, we introduce the field area.

1.2 The archaeology of Mirzapur

Tilley (1994, 48-9) suggests the following about the role of rock paintings in the landscape:

Painting on rocks was an important part of a process by which populations could tap into ancestral powers at specific topographical locations. Sites of particular importance in representations of landscape frequently refer to the places where the ancestors came out of and (having grown tired) went back into the land, between these two events creating their dreaming tracks and localized features of the topography... The ancestral beings had the power of bringing into existence the plants and animals of their totem when induced to 'emerge' by the rites. Having created the land their continuous presence (in the form of rock paintings of any kind.) ensured its regeneration.

Landscape views of the rock shelters discussed in this study suggest that it is only by looking at the spatial distribution of painted rock shelters, and indeed the paintings themselves that would, in the Vindhyan context, form the basis for useful conclusions as to how much of it was sacred and/or totemic or not, and what its predictable economic or subsistence locus was in prehistoric society. In this study, however, we have been less concerned to see rock art as religion and more as a medium for negotiating a place for prehistoric social groups in their landscapes. Thus this study has been concerned with seeing rock art as an expression arising from 'needs' rather than 'luxury'.

Since starting our work of locating and documenting the rock paintings of the Vindhyan ranges in 2009, we have documented almost every detail of the paintings at six locations, indicated below. These total approximately thirty individual rock shelters, named variously as Likhaniya Dari, Chuna Dari, Wyndham Falls, Morhana Pahar, Lekhania Pahar and Mukkha Dari. We have in the course of fieldwork recorded post-depositional processes, and taken Geographical Positioning Satellite (GPS) readings of some thirty individual painted rock art sites as well. Moreover, most of the rock paintings discussed in this study have been



FIGURE 1. LANDSCAPE AT CHUNA DARI

documented several times over by visiting the field-sites during varying seasons, as also with varying visibility from season to season, as obtains in Eastern India. This work also presents our preliminary analysis of the raw data. The remit of this project was to carry out a regional field survey and documentation of Vindhyan and Kaimur rock art occurring in the Mirzapur and the Sonbhadra Districts (Old Mirzapur.) of Uttar Pradesh, India. Broadly speaking, the mountain systems of Mirzapur and Sonbhadra, which contain rock, are a series of discontinuous hills, valleys and plateaus which are drained by several rivers, such as the Sone, Belan, Garai and Khajuri and evidence numerous ephemeral streams and waterfalls. The mountain systems here are located roughly south-south-east of Varanasi. In fact, the Vindhyan and the Kaimur Ranges extend all the way up to river Son, in the east, up to Rewa in Madhya Pradesh in the south, and in the west up to Allahabad. Well supplied as these ranges are with drainage, they also evidence prehistoric



FIGURE 2. LANDSCAPE AT LIKHANIYA DARI

and historic sites, as well as rock art imagery, known at least since 1883, when A. C. Carlyle discovered some paintings and stone tools in the Vindhya.

Although archaeological research in Mirzapur has long been conducted, some of the more important questions in the context of its rock art are beginning to emerge only in this century. This is since significant finds of archaeological artefacts from Lower Palaeolithic (Ahmed 1984, Clark and Sharma 1983, Clark and Dreiman 1983, Clark and Williams 1987, Clark and Williams 1990, Jones and Pal 2009) and onwards continuously for each successive archaeological age up to the Iron Age have now been made. Rock paintings from the nineteenth-century onwards, in considerable densities, have been found within this district as well as in Sonbhadra. It is therefore apposite to take a brief look at this archaeological picture to fathom fully the urgent need to study the rock art of Mirzapur as well as the value of our attempt to document these.

Late nineteenth-century research into the antiquity of this district included a search for both the evidence for early human habitation here in terms of tools as



FIGURE 3. LANDSCAPE AT MORHANA PAHAR

well as rock art. Beyond Carleyle's work, the next redoubtable contribution is John Cockburn's who not only located numerous new painted rock shelters but also described them most graphically. He reflected upon their origins, nature and provenance in a most informed and accurate manner (Cockburn 1883a, 1883b, 1884, 1888, 1889). In Cockburn's own estimate, not all of Vindhyan rock art imagery in Mirzapur is prehistoric, and Cockburn was certain that some of it is clearly historic. Following Cockburn's time there are few studies known until Ghosh's (1932) redoubtable survey and documentation of Vindhyan rock art, which is a regional and most scientific survey of rock art in the modern sense of the term. His study has added very significantly to our existing knowledge. Beyond the Ghosh (1932) survey, an outstanding study in the post-colonial period is by Allchin (1958). This concerned mainly the Morhana Pahar complex of painted sites. In contradistinction Allchin (1962) has also provided a vivid and most useful ethnographic account of the agro-pastoral life in the Vindhya commentating particularly on the storage and processing of cow dung-heaps or mounds which are typically found next to the seasonal and transient cattle-camps at the traditional agro-pastoral cattle-stations of the Vindhya.



FIGURE 4. LANDSCAPE AT WYNDHAM FALLS

There are now available several publications which are site-specific: such as excavations at Bagahi-Khor, Lekhania Pahar and at Leheria- Dih, all on the Morhana Pahar escarpment. Notable among these are Lukacs and Misra (2002), Varma (1964, 1965, 1986a 1986b, 1986c, 1996, 2002), Varma and Pal (1997), Misra (1977, 2005), Misra and Pal (2002), Jayaswal (1978, 1983), Tiwari (1988, 1990) and Tiwari (2000). These publications are all very valuable for us as they include an analysis of stone tool assemblages and pottery recovered through excavations at Bagahi Khor, Lekhania Pahar, and Leheria-Dih. However, V.D. Misra's excavations at Lekhania Pahar at Morhana yielded pottery and tools of stone and iron and a rich harvest of Mesolithic human skeletal remains, which have been analyzed and also radiometrically dated (Lukacs and Misra 2002). This work has fleshed-out considerably the human component of a landscape literally littered with painted rock art sites. Lukacs and Misra (2002) have also attempted a comparison between the cultural materials obtained at Lekhania Pahar with those from the excavated Mesolithic site called Damdama, which is but a hundred and sixty miles away from Lekhania, and in the Ganges Valley proper. Unlike early archaeologists, however, because of their site-specific



FIGURE 5. LANDSCAPE AT MUKKHA DARI

concerns, contemporary archaeologists have failed to give us an aggregate view of the Pleistocene subsistence and settlement adaptations in relation to the rock art sites of the Vindhyan macro-region. Detailed analyses of Vindhyan hunting-foraging, pastoralism and agro-pastoralism, infrequently mentioned in the writings of colonial workers, have failed to emerge. Equally, unlike in the colonial period, the regional distribution of such painted rock art sites in relation to their geology and geomorphology, could have been better explicated. Tiwari's (1988; 1990) study, for instance, is no doubt a redoubtable rock art survey at a regional level which has brought to light several new rock art sites which had been overlooked since the time of the colonial surveys. However, his work has concentrated on locating and documenting the sites and has far too few analytical inputs into the subject concerning the archaeology of Vindhyan rock art, although he has attempted some broad conclusions regarding form and content of the rock paintings. Actual paint samples from rock art sites have been analyzed through XRD-Analysis and Spectrographic-Emission Analysis to find the source minerals used for making the colours used in the corpus of Mirzapur rock-paintings. From our point of view, however, by ignoring the correlation of rock art with its archaeology, Tiwari (1988; 1990) also fails to draw out the environmental, subsistence and settlement implications of this



FIGURE 6. LANDSCAPE AT LEKHANIA PAHAR

corpus of rock paintings. Given the vast 12000 square mile area spread of these sites throughout the Sonbhadra and Mirzapur districts, it would seem that subsistence-and settlement-related hypotheses would have been the easiest ones to test.

Thus studies of Vindhyan rock art imagery and its archaeology have until now necessarily ranged at two extremes of meaning and archaeology, lacking synthesis which this book proposes to carry out. Here and there, however, we also attempt to present our 'new' rock art finds themselves, which may still be called 'new' beyond the work just stated. In essence, however, what this book does try to do is to synthesize the data from earlier surveys and excavation, adding to them our own findings, to provide what we hope is a tentative model of human adaptations to the late Pleistocene and early Holocene environments of the area. For this purpose the rock art survey of this region, which we have conducted, remains the main subject of consideration. In so doing, our subsidiary aim in this book is also to try to fix some steady and reliable interpretations of the content of

Vindhyan rock paintings, as there is already a surfeit of descriptions since the late 19th century. In fact, as interpretations in terms of contemporary archaeology, many such descriptions of Vindhyan rock art may also be considered voluntarism if not value-loaded (Hodder, 1999). We try to improve upon such interpretations from a variety of new perspectives. We have also tried to enhance the existing archaeological knowledge of the Vindhyan area, by means of a proper synthesis of the data associated with the Vindhyan rock art sites. In this, we have concentrated on such sites as we have documented and studied since 2009, by applying to their archaeological interpretation such new approaches as are being applied fruitfully elsewhere.

How does Vindhyan rock art behave as archaeological data? How does Vindhyan rock art help us to understand past environments and human behaviour better? Did Vindhyan rock art mediate social behavior in prehistory? I believe such a questions have never before been posed at any length of the corpus of Vindhyan rock paintings, nor indeed that there exists, until this date, a satisfactory answer to these. We hope that an occasion, such as this, allowing us to synthesize earlier interpretations of Vindhyan rock art, will allow us also to defend the enterprise of seeing Vindhyan rock art as a justifiable body of archaeological evidence. Certainly, studies of the Vindhyan rock art corpus have been so apologetic about deriving any significant conclusion pertaining to past Vindhyan environments and human behavior directly that nothing stands to be gained in the longer term without venturing boldly. The following sections of this chapter discuss the geography of this district as would be necessary for discussing its rock art.

Although by no means have we set out to research such an issue exclusively, it bears mentioning that a gendered study of Mirzapur rock art provides an interesting perspective for understanding much about how rock art may have been made. A lot of designs and decorative motifs in fact occur which cannot otherwise be explained. How is the feminine presence in Vindhyan rock art to be understood? By making the assumption that generally women authored most of it. Alternatively, through indirect representations such as ‘design’ and ‘decorative’ depictions, in which technically no gender has been shown, but given the context may be assumed. The clear depiction of such designs indicates long periods of stay at home base and hence indicates gender. Identification of gender in rock art has created some interest recently (Hays-Gilpin, 2004). Vindhyan rock art offers several examples of human figures in which gender may be identified at increasing levels of difficulty. At its simplest, the preponderantly occurring ‘male figure’ is distinguishable in terms of the activity or task it is shown to be undertaking. Thus shooting arrows, holding spears, swords and shields are common indicators of maleness. At a higher level of difficulty, dancing figures, as at Morhana CAR 9, are depicted as male using the device of the loincloth. However, as at Wyndham 3, hair-styles as well as body shapes also act as indicators of gender at CHD 1 as well as Lekhania (LKHPH-C4) and Morhana CAR 8.



FIGURE 7. A SYMBOLIC REPRESENTATION AT CAR 10, MORHANA PAHAR

1.3 The geography of Mirzapur District

Located south of the Ganga Plains, the Vindhyan and the Kaimur Ranges (Maps 1, 2, 3 and 4) border the southern and the eastern flanks of the Mirzapur and Sonbhadra Districts. These mountain ranges, with a maximum elevation of about 2000 feet separate Uttar Pradesh from Madhya Pradesh in the south and Bihar in the east. This is even as the Lower Sivaliks and the Himalayan ranges border the northward aspect of the state of Uttar Pradesh across the Gangetic Plains. The focus of our discussions in this book are the Vindhyan and Kaimur Ranges of Uttar Pradesh only, which have been the focus of our recent surveys in a quest for locating and documenting the rock art imagery of this region long since known and even published but not documented systematically.

The mountain ranges of Uttar Pradesh are well drained by rivers such as Belan, Chopan, and Sone, and many minor ones, with countless waterfalls of this district as their source, with locally known names as Garai and Khajuri. Owing to their average elevation at about 2000 feet above mean sea level the Vindhyan ranges evidence numerous drainage channels, gorges and waterfalls, such as at Wyndham, Chuna Dari, Likhaniya Dari, Mukkha Dari, Siddhnath ki Dari, Devdari and Sites like



FIGURE 8. A DIRECT REPRESENTATION OF A FEMALE FIGURE AT CAR 8, MORHANA PAHAR TOP RIGHT
HAND CORNER



FIGURE 9. PANEL AT MKD 2 SHOWING SOME AWKWARDLY DEPICTED FEMALE FIGURES
WEARING SKIRT-LIKE APPAREL, KNEELING IN FRONT OF A BUBALUS FIGURE. EQUALLY FIVE
FIGURES IN A ROW ABOVE MAY BE READ AS MALE



FIGURE 10. INDIRECT REPRESENTATION OF FEMININE GENDER THROUGH LABORIOUS DESIGNS

Lekhania Pahar, Morhana Pahar and Panchmukhi are probably exceptions to the rule. The Vindhyan Ranges afford a multitude of habitable and inhabited major and minor landscapes, primarily of sandstones and quartzite, with very thin soil profiles, which were inhabited and painted upon in prehistory and later. However, Vindhyan rock art sites are usually located on high ground rather than on the plane lands of the river valleys. Most of these are open-air habitations and just a few such as Chuna Dari, Morhana, and Lekhania Pahar shelters may be called cave-dwellings. Equally, we noticed several other shallow caves which are unpainted at Chuna Dari and Morhana Pahar. Wyndham, Mukkha Dari, Lekhania Dari, and Mukkha Dari are all open-air painted locations. However, allowing that most rock art sites here are multi-period, even so styles of execution of some motifs and designs across sites suggests that some amount of inter-site mobility must have characterized this area during and after the Pleistocene.

The maps show the areas of field survey, like Wyndham, Lekhania, Mukkha Dari, Likhaniya Dari, Chuna Dari, and Morhana, which occur within the ranges shown in these maps. The Vindhyan highland is situated to the south of the River Ganga and its basin. However, the elevation of the range is not a constant at all the given rock art sites, nor is its geomorphology. Thus just as micro-morphology, the petrology, soil

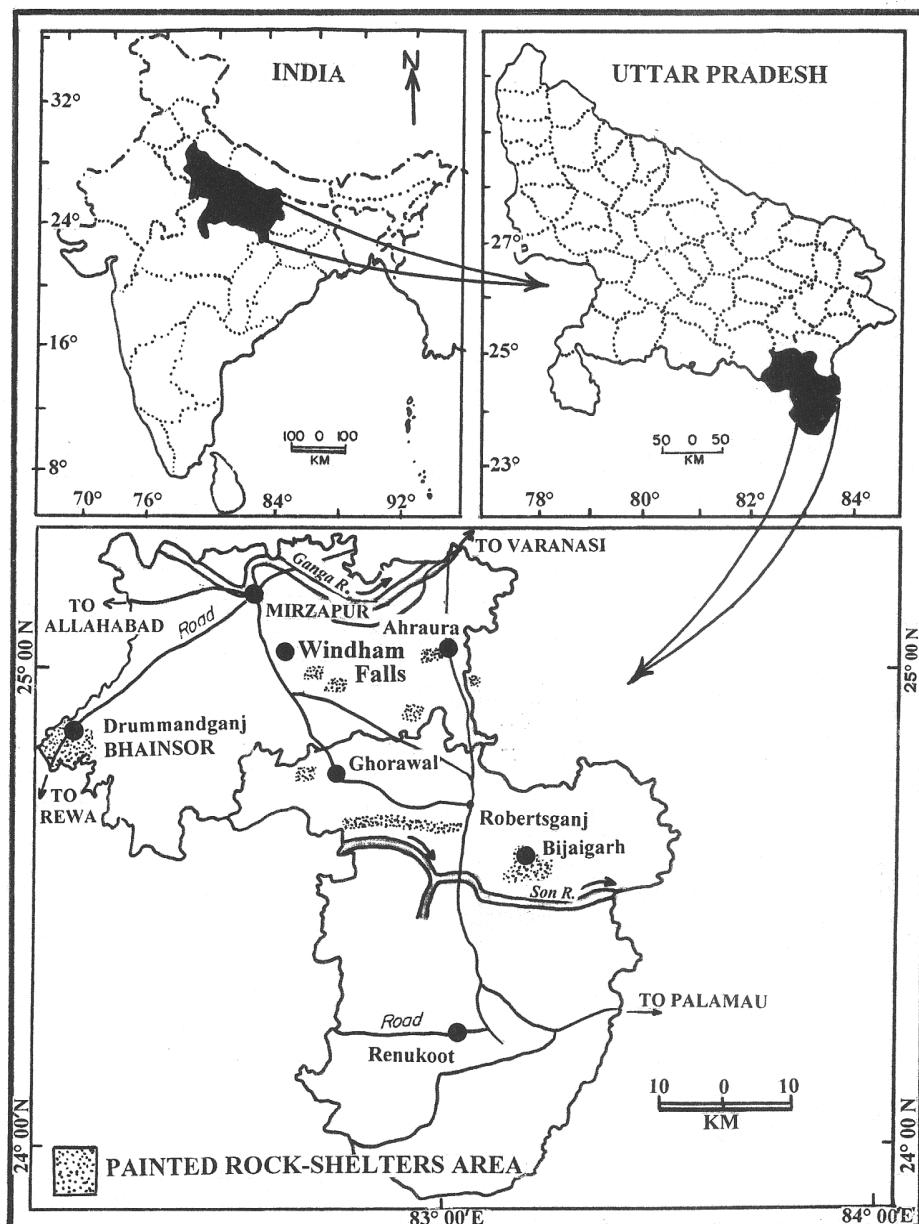


MAP 1. GOOGLE EARTH IMAGE OF THE WYNDHAM STUDY AREA. SOURCE: GOOGLE EARTH.
SCALE NOT KNOWN

S.N.	Site name (from)	Site name (to)	Distance in KM
1	Morhana Pahar (Bhainsor)	Wyndham Falls (Barkacha)	40 KM
2	Morhana Pahar (Bhainsor)	Mukkha Dari (Ghorawal)	45 KM
3	Morhana Pahar (Bhainsor)	Likhaniya and Chuna Dari (Ahraura)	65 KM
4	Wyndham Falls (Barkacha)	Likhaniya and Chuna Dari (Ahraura)	30 KM
5	Wyndham Falls (Barkacha)	Mukkha Dari (Ghorawal)	20 KM
6	Likhaniya and Chuna Dari (Ahraura)	Mukkha Dari (Ghorawal)	25 KM

TABLE 1. MAP DISTANCES BASED ON FIGURE 4 BETWEEN ROCK ART GROUPS IN THE STUDY AREA

profile and ecosystems of each rock art location vary at each of these sites, the rock art varies somewhat too. For example Wyndham, which is entirely a sandstone area and is seen as a cross-like body of water through Google Imagery, has a distinct micro-morphology and drainage which is very different from Mukkha Dari, Likhaniya Dari and Chuna Dari as well as Morhana Pahar. In contradistinction, rock art sites



LOCATION OF THE PAINTED ROCK-SHELTERS OF MIRZAPUR

MAP 2. MAP OF MIRZAPUR SHOWING ITS ROCK-ART SITES.

SOURCE: BASED ON TIWARI (1990, 4)

like Lekhania and Morhana Pahar, on the Morhana escarpment (Figure 3 and 4), are situated on a plateau with quartzite and sandstone tors, and are structurally and qualitatively different types of sites.

At a remove from earlier ones, this work also attempts to see if any intersite influences on rock art exist from prehistoric links between them. The two sites, Wyndham and Morhana, are separated by a distance of about 40 kilometres as the crow flies, and the micro-ecosystem and geomorphic variations which obtain are considerable. Yet, some of the human figures found likewise at these two distant sites have similar hairstyles. Likhaniya and Chuna Dari occur some 30 kilometres to the east of Wyndham at a decreased elevation of the Vindhyan range, and yet again hairstyles in some of the human figures here are similar to those at Wyndham and Morhana. The Mukkha Dari site bears little stylistic similarity with any other site, yet depictions of the antelope seems most prominent as at Lekhania, Morhana, and Likhaniya Dari. The Lekhania site has a selfie-like human figure, which seems to have been drawn by the same individual who drew a similar self-image over a Palaeolithic painting at Morhana Pahar. Was this a selfie?

Extensive research on Ganga valley sediments (Sharma 1980, 1-31) in excavations at Chopani-Mando, Mahagara, and Mahadaha, in the Vindhyan foothills, has uncovered a near complete picture of the environmental oscillations in the Vindhyan region at terminal Pleistocene. There has been an oscillation from very arid to very hydrous regimes leading to faunal and human displacements from the Vindhyan highlands to its foothill valleys, like that of the Belan and Sone, and further afield and into the valley of the river Ganges. Numerous lakes formed here during wet periods providing ideal lacustrine locations for terminal and post-Pleistocene human settlement. The Chopani-Mando site has yielded hoof-prints of wild as well as domesticated species of animals providing evidence of the consequences for human groups of changing climatic regimes. Naturally, stone tool industries found here begin with Upper Palaeolithic assemblages and continue through the Mesolithic to the Neolithic period. Material culture includes not only lithic and faunal assemblages characteristic of each period mentioned, but also wild and domestic species of plants, indicating a transition here from pure hunting-foraging during the Upper Palaeolithic to animal domestication and farming during the Neolithic. Burials and faunal remains also indicate growing sedentariness at Chopani-Mando, and remains of cattle-pens indicating animal domestication also characterize the site. Finally, charred remains as well as husk impressions of wild and domestic varieties of rice have also been found. More recently, a late Pleistocene climatic regime oscillating between dry and wet has also been suggested separately based on borehole data connected with Ganga Valley sediments. This study has confirmed that repeated cycles are indicated by calcareous material by way of kankars and nodules interspersed with sand and silts (Pandey 2010, 79-81).

The daldal deposit in the Ganga Plains is regarded to belong to the Holocene. Earlier deposits indicate that during last phase of Pleistocene period, kankar formations took place. Kankar (calcrete) formation in the alluvial deposit is indicative of dry phase having less rainfall below 550mm. The areas having less rainfall below 550mm per annum develop hardpan kankars whereas areas receiving rainfall between 550-800mm per annum develop kankarization in nodular forms. The areas receiving more than 800mm rainfall per annum do not develop kankar formation. An average rainfall in the area under study is about 1000mm per annum; therefore do not have scope of kankar formation in the Ganga Valley. The kankarization indicates climatic change at the end of the Pleistocene and beginning of the Holocene. The occurrence of kankar deposit in nodular form earlier and deposition of hardpan later stage do indicate dry phase and climate change. Two cycles of daldal deposit and sandy deposit do indicate heavy rainfall in the beginning of Holocene and slowly shaping of modern landforms... The kankars are indicative of dry climate (60-80ft) overlain by daldal and sandy deposit. The occurrence of kankary deposit below the daldal indicates the climatic variation. It seems that during the close of Pleistocene and beginning of Holocene, the Gangetic plain probably experienced a dry phase. In the beginning of Holocene, the climate became hot and due to melting of ice sheets of the Himalayas and heavy rains the Gangetic plain got covered with water sheets and due to heavy inflow of fine sand created daldal which is seen in boring section between 10-60 thickness.

Archaeologically, the implications of such an environmental succession for the human populations of upland Vindhya have been made evident by the find of a hoard of human skeletons in excavations at Bagahi-Khor, Lekhania Pahar and by numerous megalithic or ring-stone burials at Morhana Pahar. While at Bagahi-Khor just one complete burial has been unearthed, the 'Lekhania Skeletal Series' numbers sixteen to seventeen complete skeletal inhumations with incomplete evidence of further individuals, and existing ring-stone burials at Morhana are about the same in number. The sites on the Morhana escarpment abound in rock art sites and are possibly the most densely painted sites in all of Vindhya. Even if these have been adjudged Mesolithic (Misra 2002), they do serve to suggest that the projected Pleistocene-end human displacement from the uplands, due to repeated cycles of desiccation, was not total or complete.

Looking however at the water-supply at these sites, situated as they all are on top of the Morhana escarpment, it is reasonable to assume that the population here suffered significant depletion due to water-scarcity during late Pleistocene and early Holocene until the climate stabilized during late Holocene. However, and equally possibly, human populations at other rock art sites did rather better, owing to the availability of a good water supply. This is so for sites like Mukkha Dari, Likhaniya Dari, Chuna Dari, and Wyndham Falls all of which are located

in the catchment areas of waterfalls, rivers, and perennial streams. It is just as likely that the latter sites were the first Palaeolithic human settlements, as the population increased in periods of plentiful water supply, and therefore of game; only thereafter were the Morhana escarpment and other higher altitude areas populated by rock painting groups.

In the light of our work, it is easy to confirm that the Morhana escarpment sites all together show evidence of stress arising from resource scarcity due either to population increase, environmental change or both. On the one hand, burials found at all three sites, but not for instance at Leheria-Dih which is a small cave shelter also on the Morhana escarpment, show growing sedentariness perhaps due to shrinkage of floral and faunal cover, as by the process of an increase of population over resources leading to severe competition over territories and resources. Burials being placed close to habitation shelters indicate such shrinkage of territory. Equally, the Lekhania skeletal series has been identified clearly as a Mesolithic one on the basis of its dental pathology and several skeletons here bear 'parry-fractures' arising from inter-personal violence (Lukacs and Pal 2002). This fact really suggests that populations migrating from the lowland Vindhya due to population increase inhabited the Morhana Pahar sites. The earliest excavated level at Leheria-Dih also shows incontrovertible proof of being Upper Palaeolithic, and this site is located on the Morhana promontory, virtually at a point where it begins, after the pass leading up from the neighbouring river-valley. What else does this indicate?

The surest source, however, for the Palaeolithic populations must remain the Sone River Valley, which not only has incontrovertible proof of Acheulean onwards industries but is also located at far lower elevation than even the Mukkha Dari and Likhaniya Dari sites. Hence, a reliable model of human colonization of the Vindhya and Kaimur uplands assumes that Palaeolithic populations marching out of the Sone Valley at terminal Pleistocene colonized the lower altitude rock art locations first and then moved on to higher altitude ones only when population increase made it inevitable. The great density of rock art sites near the Sone river valley located at Churk, Rajapur, Panchmukhi, Shahganj and the Mukkha Dari are all evidence of this population expanding northwards from the reaches of Sone Valley which incidentally has its own share of rock art sites as well (Cockburn, Pal). The valleys between the Sone and Belan rivers thus must have been the focus of the earliest human settlements. The Panchmukhi site, for instance, has the barest possible rock art shapes. Likhaniya Dari at its earliest has abrasion petroglyphs and black buck designs both indicating a Palaeolithic presence, while Chuna Dari seems to have been colonized only later by populations moving up the river Garai towards areas of more dense forests and fauna. Hence, and in the final analysis, the long-term route of migration started out of the Sone Valley

colonizing neighbouring plateaus of the Sone River itself and of river valleys like Belan, Garai, Khajuri, as well as ecologically-favourable spots near Rajapur, Vijaygarh, Shahganj, Ghorawal, Ahaura, and Wyndham Falls. Only subsequently did it move to the uplands such as Morhana Pahar.

The Mesolithic site Damdama makes evident the consequences of environmental change for the animal populations of Vindhya (Thomas 2002, 374):

*The Gaur or the Indian Bison (*Bos indicus Bos gaurus*, and *Bos* sp.)¹ is an animal typical of high altitudes and hilly areas, whereas the topography of the Gangetic Plain around the site is a plain with alluvial fills and hence does not form a suitable habitat for Gaur. Now the question arises if the Gaur is not native to the Gangetic Plains, where has this animal come from...a possibility exists that during the winter season some of these animals may have migrated to the plains where they were killed by predators or trapped by man.*

Such studies indicate reliably the causes for the downward migration of human and animal species, on account of environmental change, from the Vindhyan uplands. Evidence of the exploitation of large mammal species such as *Elephas*, *Rhinoceros* and *Bos* are in smaller percentages to various types of large and small deer. Also found at Damdama are tortoises, reptiles, snails and mollusks, which are the fauna of lacustrine environments. Thomas (2002) suggests further that:

More than 30 species of animals have been identified, comprising mammals (NISP 77.39%), reptiles (12.1%), birds (8.96%), fish (1.25%) and molluscs (0.30%). Mammals constituted a major source of food at Damdama. The majority of species among the mammals are six species of deer, which together constituted 2874 bones (70.8%). Of which the mouse deer and the musk deer are negligible (only two and one bone respectively). The antelopes in general (Nilgai, Blackbuck, Chowsingha and Chinkara) had a very small share i.e., 2.26% (92/4054 bones), though the bones of the Blackbuck were in sizeable number.

That the favoured Vindhyan deer species such as nilgai, blackbuck, chowsingha, and chinkara are also depicted abundantly in Vindhyan rock art does not come as a surprise. Indeed, the sizeable number of blackbuck in the earlier layers at Damdama also sheds favourable light upon the depiction of three blackbucks deer at Likhaniya Dari, in what may be the earliest among the paintings here. Blackbuck depictions exist at Lekhania Pahar as well as at Morhana. The observation that '*The majority of species among the mammals are six species of deer, which together constituted 2874 bones (70.8%).*' has the implication that species such as *Axis axis*, *Axis porcinus*, *Axis* sp., *Cervus* sp., *Muntiacus muntjak*, and *Moschus moschiferus*

¹ Parenthesis mine

were adapted to the lacustrine savannah environment at Damdama and were hunted extensively during terminal Pleistocene and early Holocene. Equally, during the Pleistocene-Holocene transition, the subsistence pattern as indicated by the faunal remains at Ganga Valley sites such as Mahadaha, Mahagara, Sarai Nahar Rai, and Chopani Mando, agrees entirely with the faunal depictions in the region's rock art and is also implied by the climatic matrix (Misra, 2005):

The excavation yielded animal bones in an appreciable number. The animal species, identified tentatively, include cattle, bison, pig, stag, deer, rhinoceros, elephant...Bones of aquatic creatures like fish and turtle and birds have also been represented in the assemblages. All animal bones pertain to wild variety. As 90 per cent of the animal bones are charred or semi-charred, their use in diet is evident. The faunal material not only suggests the abundance of wild animals in the mid-Ganga valley during the Mesolithic ages but also furnishes information about the contemporary climatic condition. The presence of elephants and rhinoceros suggests that the climate was wetter than it is today. (Misra 2005, 41).

However, this cozy picture of a perfect adaptation between early human societies of the area and the ecology is made a little complex by the pre and post-monsoonal climate and biotic variation at all the given rock art sites. As the ecology of upland rock art sites varies considerably with the lowland archaeological sites as discussed, the rock art evidence tends to indicate subsistence economies which needed to be flexible in their extractive strategies. Such strategies would need to vary from monsoonal to dry seasons, from times of much for little mobility to times of less for much mobility. For instance, through the study period 2009-14, the landscapes at Likhaniya Dari and Chuna Dari painted shelters were found to be scorching hot and desolate, with just a few water holes. Equally, during monsoons these were transformed into highly habitable spots until the following summer. Such may be a good reason for considering flexible settlement and subsistence behaviour, as often suggested by the paintings themselves, as ones which needed to shy-away from high-risk hunting-foraging during the dry cycles of climate change, toward stable returns of pastoralism and agriculture.

As significant natural processes relating to subsistence are unleashed by the monsoons, this leads to the possibility that the Likhaniya Valley served as a good prehistoric settlement location because of its ability to provide abundant water supply during and after monsoons. In other words, in the dry season as the game would inhabit the water holes, so would the human groups. In addition, in the wet season, as the game would disperse, increasing their ranging area due to the ubiquity of the sources of water, so would the human groups. The fact that such rock art sites like Likhaniya actually served as locations for subsistence activity is proved by the occurrence of stone tools here.

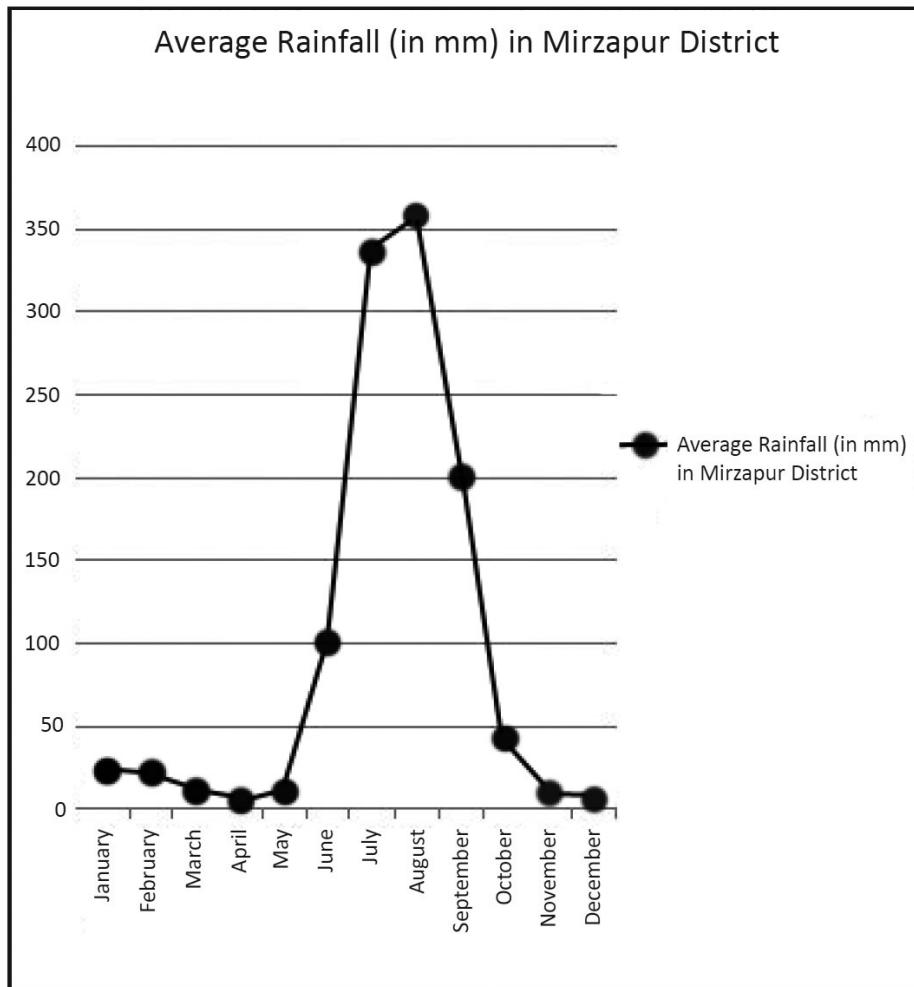


FIGURE 11. RAINFALL PATTERN BASED ON RAW DATA FROM MIRZAPUR DISTRICT
GAZETTEER, 1972.

1.4 Summaries

In this work, Chapter 1, *Introduction* provides a view of the geography, geology, flora, fauna, the climate and landforms of the Mirzapur district. Against this background, a brief introduction to the archaeology and the rock art of this district is also given. In Chapter 2, *Methodology*, we try to explain the scope of this research by discussing our methodology in relation to the field area. Earlier research carried out by colonial and early post-colonial workers, whose discussions of the archaeology as well as of the rock art of this district precedes

but also informs our own project. In so doing, we have emphasized the scope of analysis, which has a direct bearing on the line of inquiry into the rock art of Mirzapur, which has been attempted in this work. This chapter then extends and takes up for examination the old Out-of-Vindhyas Model of post-Pleistocene human and animal migrations from the Vindhyas, in the light of contemporary archaeological studies and of our own qualitative analysis of the rock art data collected during this project. We take the position that while this model has its strengths that it has its weaknesses too, which should inform a reasonable study of Vindhyan archaeology.

In Chapter 3, *The Field Survey*, we are concerned with the field strategy which we have designed and followed for this research, also with what we have done by way of data-archiving and sharing of the rock art data collected. In Chapter 4, *Discussing the Rock Art Data*, we have provided brief descriptions of the types of rock paintings occurring at each of the locations we have studied, based on a sample collected by us during fieldwork. We have then indicated with the benefit of field and post-fieldwork analysis the likely themes depicted. Chapter 5, *Post-depositional Processes and Rock Art*, is a discussion of our field observations of the various types of natural and human post-depositional activity, which affect rock art, their nature and likely archaeological significance.

Chapter 6, *Analyzing Chronology*, dwells more substantively on the likely chronology of the Vindhyan rock art. Here strands of chronological thought in the writings of colonial archaeologists of the Vindhyas have also been invoked. Chapter 7, *Analyzing Style*, discusses a preliminary classification of Vindhyan rock art into types for locating style. Here we also take up issues such as gender, and identity in relation to rock art. Chapter 8, *Interpreting Function*, engages with finding a method for deriving meaning from Vindhyan rock art. Chapter 9, *Archaeological Interpretation*, is concerned with relating the ethnography of highland Vindhyas with rock art in terms of subsistence, settlement, and mobility. This chapter also concludes and summarizes this work.

1.5 Conclusion

In this opening chapter, we introduced the geography of Mirzapur district as a factor influencing subsistence and settlement since prehistory and therefore necessary for the understandingg of its rock art. The locations in which rock art is found in this district represent prehistoric settlement and subsistence locations and hence the depictions in the rock art itself, if followed carefully, should reflect this fact. Climatic phenomena were also discussed, in a long-term perspective, as having influenced the subjects chosen for depiction in rock art. This, we hope, should also allow us to appreciate the post-depositional processes which work to degrade the rock art here.

Chapter 2

Methodology

2.1 Introduction

In this project, we felt early on that a proper archaeological documentation of Vindhyan and Kaimur rock art was a prior necessity for its analysis. A major undertaking of this project therefore has been a proper multimedia recording of the rock art at six of the most notable rock art clusters of this region. If a proper archaeological documentation of the rock art of this region had been previously effected then it had not seen the light of day. Most publications which we have consulted reproduce an infinitesimally low quantum of the original rock paintings.² A special, if thus far unique, aspect of our work has been to also document and study systematically the post-depositional processes operating on Vindhyan rock art. This was done by visiting rock art sites as far as possible both before and after monsoons and during winter and summer. Our principal concern here will be to discuss the methodology of research followed in this study.

2.2 Previous research

Rock art locations in the Mirzapur district have been known from the late 19th century onwards. Explicating their geographic variation, Mitra (1975, 125-6) suggests:

The rock shelters observed by Mr. Cockburn are all in the eastern half of the Mirzapur district, taking Mirzapur as a centre, and may be classified as follows: The Ahraura group. (1) Chunadari in the gorge of the Gudheye (sic) nadi, (2) Bhaldiri, (3) Murround, 2 ½ miles from Sookerit (sic), (4) Kopsas near Ahraura. The Chakia group. (1) Adjure, gorge of the Chandurparbah, (2) Amchua. Robertsganj group. (1) Temple mound cave, village of Roump, (2) Symbol cave, (3) Lori shelter.... .

Following leads such as given above, in the course of our fieldwork we have surveyed the localities known as Likhaniya Dari, Chuna Dari, Morhana Pahar, Lekhania Pahar, Mukkha Dari and Wyndham Waterfalls as prehistoric imagery was reported from these locations. If these proved worthwhile leads to follow, there were others which did not. Very strenuous surveys at some sites like Devdari, Rajdari, and Siddhnath Ki Dari waterfall sites led to no particular result

² It would be appropriate to mention that the Indian Council of Historical Research has since been given a complete archive of the digital photo and video documentation of the sites mentioned in this work: Lekhania, Morhana Pahar, Wyndham, Likhaniya Dari, Chuna Dari and Mukkha Dari sites.