

Developing Animal and Human Relationships in Prehistoric South India: A Spatial and Contents Analysis of Petroglyphs at Maski, Karnataka.

Volume 1 of 2

Submitted by Jemma Singleton to the University of Exeter as a thesis for the degree of Doctor of Philosophy in Archaeology in August 2019.

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Acknowledgements

There was a time when I was certain that I was not going to complete this doctoral thesis. I had even printed out and signed my withdrawal form and had an extensive and emotional conversation with my primary supervisor, Linda Hurcombe about the reasons for my decision. I have most likely experienced the same degrees of euphoria and doubt that accompany any doctoral process compounded by some pretty shaky issues in my personal life. Although it has taken two and a half years longer than I would have liked to complete this thesis, the fact that I stuck at it, and have handed in a completed piece of research fills me with a profound sense of achievement. The additional fact that I have felt engaged with my research and its wider implications towards the end of the writing process is a further personal success. I feel incredibly lucky to have been a part of the UK-India Intangible Histories doctoral partnership.

If I could give some words to either myself six years ago, or to a doctoral student about to embark on their own research, it would be this. Sometimes your research will make you feel like you are flying on air; a great deal of it will be a matter of routine and at other times you will feel like you are face down in a ditch, with a troll jumping on your brain. Always have someone that you can talk to, your writing is always better than you think it is, and remember to take some time away from your work. I have a great deal of gratitude for all the people I have had the fortune to meet, both in the UK and India during the course of my research project whom I hope to keep in touch with. Sometimes writing a PhD can feel like a lonely void, and so there are many people I would like to thank, who in their own ways of academic advice, friendship or bendable ears have given me the gusto to cross the doctoral finish line.

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writing up whilst I was juggling full time work coupled with thesis writing. Finally, I thank Luke Begley for helping me to chill.

I have no definite future research plans as of yet, but I hope to work on a few more publications. I also have a few seeds brewing in my mind which may form into fully budding research designs regarding how and why social groups produce meaningful images in landscapes.

Abstract

Developing Animal and Human Relationships in Prehistoric South India: A Spatial and Contents Analysis of Petroglyphs at Maski, Karnataka.

This thesis is the result of an in-depth investigation into the rock art of a local region in South India. It has explored the significance of tangible landscape placement in rock art production, a form of visual culture which remains intangible in many aspects of meaning. This thesis elaborates on current forms of archaeological knowledge in South India, generated through social understandings of landscape, contrasted against current knowledge of rock art in South India. It provides a means to intersect rock art documentation with archaeological research projects within an Indian context in a cost effective and widely applicable manner.

A spatial analysis regarding the wider contexts of rock art sites, comparing their spatial proximity to variable natural and anthropogenic landscape features demonstrate the ubiquity of rock art production in this region of South India, associated with developed and ephemeral prehistoric habitation patterns. Additionally, a close scale analysis of technical details at panel level reveal different methods of continual interaction with motifs subsequent to their initial production phase, along with enhanced visualisations of motif forms. Overall, this thesis makes suggestions about the role of rock art in visualising developing relationships with animals and humans throughout the prehistoric period in South India, with a particular focus on cattle motifs. This thesis argues that the nature of that relationship is a continually transformative one, extending beyond the prehistoric period. Results presented in this thesis supports the integration of rock art documentation and analysis into other archaeological research projects within the Indian subcontinent, providing an added dimension to the complexity of archaeological human-landscape interactions.

Contents

<i>List of illustrations</i>	9-14
<i>List of tables</i>	14
<i>List of Maps</i>	14
<i>Definitions</i>	15-16
Volume 1	1-133
Chapter One. Introduction	17-32
1.1 Moving beyond a sense of wonder	17-18
1.1.2 The intangible and tangible aspects of rock art	18-22
1.2 Definitions	22-28
1.2.1 Rock art or Rock-art?	22-25
1.2.2 But is it art?	25-28
1.3 Thesis structure	28-32
Chapter Two. Incorporating rock art into the landscape	33-67
2.1 Intersecting rock art research into archaeological understandings of landscape	33-39
2.2 Landscapes in the archaeology of India	39-51
2.2.1 Archaeological features of South Indian prehistory and early historic transition.	44-51
Ashmounds	44-46
Megaliths	46-48
Settlements	48-51
2.3 Landscape methods in rock art research	51-54
2.4 Landscape frameworks for finding 'meaning' in rock art research	54-67
2.4.1 Structuring the landscape	55-58
2.4.2 Subjectivity in the landscape	59-61
2.4.3 Socialising the landscape	61-67
2.4 Conclusion	67
Chapter Three. Current understandings of rock art in the Indian subcontinent	68-104
3.1 Rock art studies in India	68-74
3.2 Categorising rock art in South India	75-90
3.3 Style	90-103
3.3.1 Understanding style	90-92
3.3.2 Using style in rock art research	92-97
3.3.3 Stylistic sequencing in the rock art of Karnataka	97-103
3.4 Conclusion	104
Chapter Four. Incorporating rock art documentation into existing archaeological research projects	105-133
4.1 Introduction	105
4.2 Contextualising historical research at Maski	105-109
4.3 The Maski Archaeological Research Project (MARP)	109-116
4.3.1 Introduction	109-112

4.3.2 Methods and preliminary observations of the MARP project, 2010-2012	112-116
4.4 Previous descriptions of rock art at Maski	116-122
4.4.1 Visualisation considerations for rock art documentation	120-122
Traditional methods	120-121
Digital methods	121-122
4.5 A methodology for documenting rock art at Maski	122-133
Rock art Recording forms	125-126
Motif identification	126-131
GPS plotting	132
Photography	132-133
Field conditions	133
4.6 Conclusion	133
Volume 2	134-388
Chapter Five. A summary of results	135-185
5.1 Introduction	135-140
5.2 Single panel sites	141-146
5.3 Small sites	146-159
5.4 Medium sites	159-171
5.5 Large sites	171-183
5.6 Conclusion	184-185
Chapter Six. Patterns in landscape placement	186-227
6.1 Introduction	186-187
6.2 Spatial association with archaeological activity zones	188-210
6.2.1 Distances from rock art sites	190-207
6.2.2 Patterns in spatially associated activity areas	208-210
6.3 Motif quantities in relation to site size	210-213
6.4 Motif percentages in landscape contexts	213-219
6.5 Motif accumulations on panels	219-226
Penplain	221
Low relief or inselberg	221
Rock slope	222-223
Elevated outcrop	224-226
6.6 Conclusion	226-227
Chapter Seven. Technical image production on panels	228-308
7.1 Introduction	228-229
7.2 Dstretch© methods and analysis evaluation	229-233
7.2.1 Digital imaging in rock art analysis	229-231
7.2.2 A description of DStretch©	231-237
7.2.3 Using Dstretch© analysis on images of petroglyphs at Maski	238-243
7.3 Identifying motifs, clarifying indeterminate images and delineating motif boundaries	243-251
7.4 Superimposition sequencing	252-296

7.4.1 Spatial clustering A	256-257
7.4.2 Spatial clustering B	258-271
7.4.3 Spatial clustering C	272
7.4.4 Spatial clustering D	273-285
7.4.5 Spatial clustering E	286-289
7.4.6 Spatial clustering F	290
7.4.7 Spatial clustering G	291-296
7.5 Bovine stylistic categories	296-302
7.6 Additional interaction phases	302-207
7.7 Conclusion	308
Chapter Eight. Discussion	309-344
8.1. Methodological discussion	311-316
8.2 Landscape choices in rock art placement	316-327
8.3 Themes in motif content	327-344
8.3.1 Identifiable motif forms	327-331
8.3.2 Continued interaction with rock art panels	331-335
8.3.3 Style at Maski	335-344
Chapter Nine. Conclusions	345-354
Bibliography	355-388
Appendices	
Appendix A: descriptions of MARP sites 2010-2012 (inclusive of rock art)	1-15
Appendix B: descriptions of MARP sites 2014-2015 (exclusive of rock art)	16-26
Appendix C: examples of completed rock art recording forms	27-32
Appendix D: information of images used for Dstretch analysis	33-36
Appendix E: stylistic attributes assigned to bovine motifs	37-39
Appendix F: datastick of successful enhanced images from Appendix D, datastick attached.	

List of illustrations

3.1 Photograph of a rock shelter at Bhimbetka.	70
3.2 Photograph of rock paintings at Bhimbetka.	70
3.3 Photograph of rock paintings at Billasurgam cave.	80
3.4 Digitally modified photograph of dated petroglyph at Billasurgam cave.	81
3.5 Photograph of petroglyph bruising technique.	82
3.6 Sketch of petroglyph at Maski.	84
3.7 Sketch of petroglyph at Maski.	84
3.8 A photograph of petroglyphs at Hiregudda.	86
3.9 A photograph of grinding grooves.	88
3.10 A photograph of 'ringing rock' scuff marks.	88
3.11 Sketches of humped bulls at Piklihal.	98
4.1 Satellite Image of the study area of Maski.	106
4.2a Example of a rock art site recording form.	129
4.2b Example of a rock art panel recording form.	130
5.1 Photograph of patination changes within one bovine motif.	138
5.2 Photograph of landscape setting for single panel sites.	143
5.3 Photograph of a bovine motif.	144
5.4 Photograph of a rock art panel with variable weathering processes.	145
5.5 Photograph of landscape setting for small sites.	149
5.6 Photograph of landscape setting for small sites.	149
5.7 Photograph of an abstract motif.	151
5.8 Photograph of an abstract motif.	151
5.9 Photograph of an abstract motif.	151
5.10. Photograph of an anthropomorphic and abstract motif.	152
5.11 Photograph of a rock art panel with biofilm growth.	154
5.12 Photograph of a rock art panel with biofilm growth.	154
5.13 Photograph of a rock art panel with biofilm growth.	155
5.14 Photograph of landscape setting for a rock art and metal working site.	157
5.15 Photograph of landscape setting for a rock art and metal working site.	158
5.16. Photograph of ancient quarry marks associated with a rock art site.	158
5.17 Photograph of a landscape setting for medium sites.	162
5.18 Photograph of a landscape setting for medium sites.	162
5.19 Photograph of a landscape setting for medium sites.	163
5.20 A photograph of a rock art panel demonstrating multiple faunal and anthropomorphic motifs.	164
5.21 A photograph of a patinated bovine motif.	165
5.22 A photograph of patinated anthropomorphic motifs.	165
5.23 A photograph of a panel with bovine and anthropomorphic motifs.	166
5.24 A photograph of accumulated bovine motifs.	167
5.25 A photograph of a patinated abstract grid motif.	168

5.26 Photograph of artefacts recorded in spatial association with rock art sites.	170
5.27 Photograph of rock art panel in spatial association with a previously occupied rock shelter.	171
5.28 Photograph of landscape setting for large sites.	174
5.29 Photograph of landscape setting for large sites.	175
5.30 Photograph of a deer motif.	176
5.31 Photograph of an abstracted motif.	177
5.32 Photograph of elephant motifs.	177
5.33 Photograph of bovine motifs.	178
5.34 Photograph of bovine and anthropomorph motifs.	178
5.35 Photograph of anthropomorph motif.	178
5.36 Photograph of motif accumulation on a panel at a large site.	179
5.37 Photograph of mineral encrustation on a panel.	181
5.38 Photograph of a red slip and polish ceramic jar rim.	183
6.1a Topographical relief map demonstrating spatial cluster locations of archaeological activity.	193
6.1b Diagram of archaeological activity at spatial clustering A.	195
6.1c Diagram of archaeological activity at spatial clustering B.	196
6.1d Diagram of archaeological activity at spatial clustering C.	197
6.1e Diagram of archaeological activity at spatial clustering D.	200
6.1f Diagram of archaeological activity at spatial clustering E.	201
6.1g Diagram of archaeological activity at spatial clustering F.	202
6.1h Diagram of archaeological activity at spatial clustering G.	205
6.1i Diagram of archaeological activity at spatial clustering H.	206
6.2 Line graph of archaeological activity types spatially associated with rock art sites.	208
6.3 Scatter graph demonstrating the relationship of motif numbers over size area.	211
6.4a Pie chart demonstrating the proportions of documented motifs in peneplain contexts.	215
6.4b Pie chart demonstrating the proportions of documented motifs in low relief tor inselberg contexts.	215
6.4c Pie chart demonstrating the proportions of documented motifs in rock slope contexts.	216
6.4d Pie chart demonstrating the proportions of documented motifs in elevated outcrop contexts.	216
6.5 Bar chart demonstrating numbers of motifs by category according to landscape setting.	218
6.6a Radar graph demonstrating motif accumulation per panel in peneplain contexts.	221
6.6b Radar graph demonstrating motif accumulation per panel in low relief tor inselberg contexts.	221
6.6c Radar graph demonstrating motif accumulation per panel in rock slope contexts.	222
6.6d Radar graph demonstrating motif accumulation per panel in elevated outcrop contexts.	224

7.1 Photograph of unenhanced and then enhanced rock paintings from San Borjitas rock shelter, California.	233
7.2 Combined photograph demonstrating the visual effects of five colour spaces.	240
7.3 A photograph of rock art panel at Maski.	244
7.4 A photograph of a rock art panel in fig 7.3, at a different orientation.	245
7.5a An unenhanced photograph of rock art at Maski.	247
7.5b An enhanced photograph of rock art at Maski using in LRD.	247
7.6a An unenhanced photograph of rock art at Maski.	250
7.6b An enhanced photograph of rock art at Maski using in LAB.	250
7.7a An unenhanced photograph of rock art at Maski.	251
7.7b An enhanced photograph of rock art at Maski using in LRD.	251
7.8 Photograph demonstrating motif superimposition.	254
7.9 Photograph of superimposed panel at Maski.	256
7.10 Diagram of discernible superimposition phasing and motif relationship.	256
7.11 Photograph of superimposed panel at Maski.	257
7.12 Diagram of discernible superimposition phasing and motif relationship.	257
7.13 Photograph of superimposed panel at Maski.	258
7.14 Diagram of discernible superimposition phasing and motif relationship.	258
7.15 Photograph of superimposed panel at Maski.	259
7.16 Diagram of discernible superimposition phasing and motif relationship.	259
7.17 Enhanced photograph from fig 7.15 in LAB colour space.	260
7.18 Enhanced photograph from fig 7.15 in LRD colour space.	260
7.19 Photograph of superimposed panel at Maski.	261
7.20 Diagram of discernible superimposition phasing and motif relationship.	261
7.21 Photograph of superimposed panel at Maski.	262
7.22 Diagram of discernible superimposition phasing and motif relationship.	262
7.23 Enhanced photograph from fig 7.21 in LAB colour space.	263
7.24 Enhanced photograph from fig 7.21 in LRD colour space.	263
7.25 Photograph of superimposed panel at Maski.	264
7.26 Diagram of discernible superimposition phasing and motif relationship.	264
7.27 Photograph of superimposed panel at Maski.	265
7.28 Diagram of discernible superimposition phasing and motif relationship.	265
7.29 Photograph of superimposed panel at Maski.	266
7.30 Diagram of discernible superimposition phasing and motif relationship.	267
7.31 Photograph of superimposed panel at Maski.	268
7.32 Diagram of discernible superimposition phasing and motif relationship.	268
7.33 Photograph of superimposed panel at Maski.	269

7.34 Diagram of discernible superimposition phasing and motif relationship.	269
7.35 Photograph of superimposed panel at Maski.	270
7.36 Diagram of discernible superimposition phasing and motif relationship.	270
7.37 Photograph of superimposed panel at Maski.	271
7.38 Diagram of discernible superimposition phasing and motif relationship.	271
7.39 Photograph of superimposed panel at Maski.	272
7.40 Diagram of discernible superimposition phasing and motif relationship.	272
7.41 Photograph of superimposed panel at Maski.	273
7.42 Diagram of discernible superimposition phasing and motif relationship.	274
7.43 Photograph of superimposed panel at Maski.	275
7.44 Diagram of discernible superimposition phasing and motif relationship.	275
7.45 Photograph of superimposed panel at Maski.	276
7.46 Diagram of discernible superimposition phasing and motif relationship.	277
7.47 Enhanced photograph from fig 7.45 in LAB colour space.	278
7.48 Photograph of superimposed panel at Maski.	279
7.49 Diagram of discernible superimposition phasing.	280
7.50 Diagram of motif relationship.	281
7.51 Photograph of superimposed panel at Maski.	282
7.52 Diagram of discernible superimposition phasing and motif relationship.	282
7.53 Photograph of superimposed panel at Maski.	283
7.54 Diagram of discernible superimposition phasing and motif relationship.	283
7.55 Photograph of superimposed panel at Maski.	286
7.56 Diagram of discernible superimposition phasing and motif relationship.	286
7.57 Photograph of superimposed panel at Maski.	287
7.58 Diagram of discernible superimposition phasing and motif relationship.	287
7.59 Photograph of superimposed panel at Maski.	288
7.60 Diagram of discernible superimposition phasing and motif relationship.	288
7.61 Photograph of superimposed panel at Maski.	289
7.62 Diagram of discernible superimposition phasing and motif relationship.	289
7.63 Photograph of superimposed panel at Maski.	290
7.64 Diagram of discernible superimposition phasing and motif relationship.	290
7.65 Photograph of superimposed panel at Maski.	291
7.66 Diagram of discernible superimposition phasing and motif relationship.	291
7.67 Enhanced photograph from fig 7.65 in YRD colour space.	292
7.68 Photograph of superimposed panel at Maski.	293

7.69 Diagram of discernible superimposition phasing and motif relationship.	293
7.70 Photograph of superimposed panel at Maski.	294
7.71 Diagram of discernible superimposition phasing and motif relationship.	294
7.72 Photograph of superimposed panel at Maski.	295
7.73 Diagram of discernible superimposition phasing and motif relationship.	295
7.74 Diagram of six main bovine styles.	300
7.75 Stacked bar chart demonstrating the presence of each bovine style in superimposition phasing.	301
7.76 Photograph of rejuvenated bovine panel at Maski.	303
7.77 Enhanced photograph from fig 7.76 in LAB colour space.	303
7.78a Photograph of bovine motifs at Maski.	305
7.78b Enhanced photograph from 7.78a in LAB colour space.	305
7.78c Enhanced photograph from 7.78a in YYE colour space.	305
7.79 Photograph of bovine motifs at Maski.	307
7.80 Enhanced photograph from fig 7.79 in LYE colour space.	307

List of Tables

3.1 Proportions of rock art sites divided by state boundaries in India.	75
3.2 Stylistic sequencing of rock art at Bhimbetka.	92
3.3 Stylistic sequencing of rock art at Hiregudda.	101
4.1 Stylistic attributes assigned to cattle motifs.	131
5.1 Summary of site features for single panel sites.	142
5.2 Quantities of motifs by category for single panel sites.	144
5.3 Association with archaeological assemblages or features for single panel sites.	146
5.4 Summary of site features for small sites.	147
5.5 Quantities of motifs by category for small sites.	150
5.6 Association with archaeological assemblages or features for small sites.	156
5.7 Summary of site features for medium sites.	161
5.8 Quantities of motifs by category for medium sites.	163
5.9 Association with archaeological assemblages or features for medium sites.	169
5.10 Summary of site features for large sites.	172
5.11 Quantities of motifs by category for large sites.	176
5.12 Association with archaeological assemblages or features for large sites.	182
6.1 Numbers of archaeological sites encountered at distance intervals from rock art sites.	190

6.2 Numbers of archaeological sites encountered at distance intervals from rock art sites (excluded from the main analysis).	192
6.3. Numbers of rock art sites associated with other rock art sites at specific distance intervals.	208
7.1 Success rates for each of the five main colour spaces used in Dstretch analysis.	243
7.2 Success rates of superimposition sequencing.	252
7.3 Panels selected for stylistic sequencing.	297

List of Maps

2.1 Location of ashmounds in southern India.	45
3.1 Location of major rock art regions in India.	74
4.1 Map of the survey system used by MARP.	112
4.2 Map of key findings from MARP field survey.	114

Definitions

Definitions of technical terms used within this thesis.

- Bruising: a technique of producing rock art motifs by repeatedly abrading the top layer of a rock panel surface to expose the unstained rock surface beneath. Fits in with overarching definition of a petroglyph (see below).
- Crosscutting: the point where the boundaries of two motifs intersect over and under one another.
- Foliation: localised surface removal of a panel surface in thin layers caused by repeated heating and cooling of a geological surface. The visual effect is like that of an onion skin.
- Infill: an effect created in motif production describing the complete surface removal of a panel within the boundary lines of a motif, making a silhouette motif effect.
- Inselberg: the weathered and eroded remains of relic hill ranges, identified by exposed collections of rock boulders in the landscapes of Karnataka and Andhra Pradesh.
- Modification: evidence of a later interaction phase with an already existing motif, where part of the motif morphology has been altered, whilst the existing motif is still visible.
- Oxidation: the darkening of a panel surface due to chemical reactions with the geology of the panel and the surrounding air. A form of chemical weathering.

- Obliteration: production of a motif over an older motif so that the older motif cannot be identified.
- Patination: an accretional crust over a geological surface caused by chemical weathering processes, also known as a 'patina.'
- Peneplain: low, flat extensive land produced by erosion over a long period.
- Petroglyph: a form of rock art production used with reductive techniques, such as pecking, abrading, incising, carving or bruising (see above). It consists of the removal of a rock art panel surface.
- Rejuvenation: a more recent phase of interaction with a pre-existing motif, following the motif boundaries of the older motif so that the two interaction phases are visible.
- Surface staining: localised colour changes on a panel surface often formed by biological or hydrological activity, such as biofilm growth or repeated dripping from overhanging rock ledges.

Chapter One. Introduction.

1.1 Moving beyond a sense of wonder.

Like other scholars who investigate rock art (such as Paul Bahn, Jean Clottes, Michel Lorblanchet, David Whitley), the author's interest in this particular subject matter was stimulated by leisurely expeditions to the caves of southern France during the last year of her undergraduate degree in archaeology. While going to the caves of Font de Gaume and Rouffignac in the Dordogne region, both quite different cave systems in their underground setting and subsequent rock art manifestations, it was easy to be swept away by the experience of each place. Access to Font-de-Gaume is restricted to less than 100 visitors per day to preserve, or mitigate damage to, the polychrome painted surfaces. Visitor access to the drawings of Rouffignac consists of a rickety electric train ride for one mile into the cave system.

In Font de Gaume the presentation of the images encompassed a cohesion between animal form and cave wall. These were emotive experiences, indicative of a carefully managed tourist destination, intended to make the modern audience gasp in wonder at the ingenuity and long-standing creative acumen of human expression. There were, of course, additional questions as to who produced these images? How were they produced? When were they produced? Why were they created? There were also many questions relating to the prehistoric environmental context and archaeological setting of the area, the intricacies of chronological ordering, production technique of motifs, and the degree of certainty that researchers can ascribe to motif identification, to name but a few. Within these caves there were also remnants of scratched graffiti dating to the French revolution, combined within the same spatial setting as Upper Palaeolithic motifs, providing unequivocal evidence that these cave systems should not be solely understood as places of the Pleistocene.

In 2013 the author applied for a funded position on the Intangible Histories split-site doctoral programme, co-ordinated by the University of Exeter and the National Institute of Advanced Studies (NIAS), in Bangalore. It was one of a series of funded doctoral placements, initiated by the UK India Education Research Initiative (UKIERI), which aims to enhance bilateral and long-standing education and research links between India and the UK, through an exchange of

scholars, research ideas and technical skills. During the author's undergraduate and post graduate degrees, both in archaeology, she acquired a reasonable spread of knowledge regarding theoretical and methodological developments in the discipline from disparate geographical contexts including the USA, northern Europe, central and southern Asia. The author gained an understanding of archaeological developments in the Indian subcontinent focused on the Indus Civilisation and forms of material culture (namely ceramics, lithics, other portable artefacts and settlement remains) as they were discovered in regional areas of the subcontinent.

Being part of an international doctoral programme encouraging split-site research and interdisciplinary procedures allowed the author to engage in lively collaborative dialogue with scholarly experts in their various fields. The author is indebted to Sharada Srinivasan for her consistent support, knowledge of the scholarly field and opportunities she has afforded, culminating in the chance to work with the Maski Archaeological Research Project (referred to for the duration of this thesis as MARP).

1.1.2 The Intangible and tangible aspects of rock art

This section explores how rock art can be understood within the umbrella term of the Exeter-NIAS doctoral partnership, that of intangible histories. It is worth exploring the meaning of this expansive phrase, and, in doing so, assess the tangible and intangible qualities inherent in rock art, both as a subject matter and how it is understood from a research perspective.

It is seemingly impossible to talk about intangible histories without introducing the dense and contradictory nature of heritage. During the latter half of the twentieth century, a series of United Nations Education, Scientific and Cultural Organisation (UNESCO) recommendations made increasing strides to define and safeguard objects understood as *tangible* cultural heritage and natural landscapes, an attempt to prevent the illicit trafficking and destruction of cultural property, prioritising museum objects (Blake 2000, 62).

From 2003, the concept of cultural heritage as understood within a UNESCO framework, was extended to include activities and concepts defined as

intangible, including but not limited to, oral traditions, performing arts, rituals and events and traditional craftsmanship (Corsane et al. 2012; Smith and Akagawa 2009; UNESCO, Accessed Aug 2016).

The conceptual relationship between tangible and intangible heritage, as understood by UNESCO, assumes both a universality in the idea of heritage on a global scale, whilst fossilising localised specificities of tangible and intangible heritage practices (Alivizatou 2012, 10; Andrews et al. 2007; Lixinski 2013). The paradoxes of tangible versus intangible heritage practices are beyond the scope of this thesis, but see the recent edited volumes of *Safeguarding Intangible Cultural Heritage* by Corsane et al. (2012), *Intangible Heritage* by Smith and Akagawa (2009) and the *International Journal of Intangible Heritage* for general themes and case study specific discussions. For many populations, especially minority groups and indigenous communities, intangible heritage is a vital source of identity that is deeply rooted in history (Kirshenblatt-Gimblett 2004, 54). However, research into these histories often produces accounts that are in themselves constructed, pluralistic, contradictory or underrepresented (Graham et al. 2016).

The overarching understandings of intangible heritage, when placed alongside those of intangible histories, are contentious and overlapping. Within archaeological research, notions of intangible histories can relate to a physical absence of material evidence. For example, a fragment of pottery acts as a proxy for the existence of a potential container and cordage imprints inform researchers about the previous existence of textiles (Hurcombe 2008; Hurcombe and Kamper 2016). These examples demonstrate just how ephemeral, remnants of past human activity can be. Additionally, the absence of living individuals relating to specific artefact assemblages implies that complete interpretations of archaeological materials, even when (re)constructed, retain an element of intangibility, especially within prehistoric contexts. Furthermore, dominant modes of archaeological discourse emanating from a western perspective, has ensured that certain self-identifying cultural groups have remained under-represented within traditional archaeological investigation (Armstrong-Fumero and Guitierrez 2017; Morrison and Lycett 2013, 131; Morrison 2006).

Rock art, when accepted within archaeological frameworks incorporating the material remains of the human past, demonstrates both tangible and

intangible aspects. These aspects relate to how it is recorded as a subject matter and what qualities of the rock art is investigated, ultimately influencing the level of nuance given to interpretations about rock art as a long-standing and significant landscape practice.

The *tangible* hinge of rock art research is that of its landscape placement, from the choice of rock type to observable evidence of motif production events, which often remain in-situ (Bahn 2010, 137; Bradley 1997; Chippendale and Nash 2004; Flood 2004). This inherent tangibility provides researchers with an objective means of recording where a motif, or series of motifs, are placed in terms of its environmental, geological and archaeological context. Additionally, the process of sequencing superimposed motifs on panel surfaces provides an observable means of capturing a relative temporal framework (Chippendale et al., 2000; Franklin, 1993). Finally, the identification of motifs through categorisation, along with an evaluation of their preservation condition can be attempted by the researcher. These components all provide a tangible means of recording information about rock art content and their landscape settings. However, when collected information is critically analysed in terms of the foundational bias inherent in specific documentation methodologies, see Deacon (2012), some elements of intangibility can become apparent.

At first glance, the intangible nature of rock art is most immediately understood in the context of prehistoric rock art which, on a global scale, consists of markings on stone extending over tens of thousands of years. Although the occasional researcher is prone to dismiss deeper understandings, beyond a descriptive account, of prehistoric rock art as speculative and intangible see Bahn (2010, 159), there are many research investigations that have successfully incorporated rock art into prehistoric cultural contexts, see Bradley, (2006), (1997), Coles (2004), David (2004), Domingo Sanz (2008), Lewis-Williams (2013) and Tacon et al. (1996).

Secondly, the intangibility of meaning about specific rock art motifs is compounded by the argument that even the identification of motifs remains speculative, bent to the subjective will of the researcher in question (Clegg 1978, 2001). Although figurative motifs may be identified with variable degrees of certainty, there are other visible motif forms which may be unrecognisable to the

researcher, due to their heavily eroded condition or heightened degree of abstraction.

Concepts of intangibility connected to rock art are not confined to the temporal absence of communities who produced and interacted with the sites and images. Intangibility can also be a deliberate choice by certain communities regarding the meanings and significance of the locations in which rock art is produced, regulated by rock art content and the differential producers (Bahn 2010, 137). Regulated restrictions on knowledge do not just relate to the rock art researcher, but to identifiable groups or individuals within a specific cultural community, see Smith et al. (2012) and Haetta (1995). For example, there are several layers of information about specific rock art sites held by different individuals and indigenous groups in Australia (Layton 1992, 124). There are also reports of rock art knowledge segregated on the basis of gender, from accounts in southern California and the Columbia Plateau (Hays-Gilpin 2004, 91). These examples, although relating to an intangibility of knowledge as inaccessible, are more focused on the awareness of wider rock art meanings that are restricted within different social contexts.

Although an element of deliberate self-chosen intangibility may exist in the extraction of meaning from rock art, there is a more sinister aspect of intangibility connected to its continued existence on a global scale. Experts warn that half of Australia's indigenous art could disappear within half a century, if nothing is done to conserve, or at least manage it, from international resource extraction companies (Jopson 2013; Milman 2014). Additionally, the combination of vandalism, injudicious tourist practises and lack of interest or resources on the behalf of regional and national governments, ensures the destruction of many rock art sites in Africa (Campbell and Coulson 2001; Coulson 1999; Gale and Jacobs 1987; Ouzman 2006). A similar set of variables are present in the Indian subcontinent, where the occasional news article points to the vandalism of rock art sites with indigenous importance, such as at Karikiyoor, Kil Kotagiri in the Nilgiri Hills, Tamil Nadu in June 2019 (The Hindu, accessed June 2019). This is unfortunately the case for a growing number of rock art sites which are not adequately documented or their wider significance assessed, increasingly ensuring that rock art and the knowledge it contains becomes part of an irreversible intangible history (Agnew et al. 2015).

It is important to acknowledge the multiple strands tangible and intangible information inherent in rock art as a subject matter. This thesis presents the rock art from a specific region of South India, utilising tangible means of rock art documentation and analysis. This thesis goes on to suggest interpretative meanings about a form of rock art, which is currently little understood within its wider landscape as a past significant practice. These tangible elements focus on a contextual recording of rock art sites situated within the landscape, gathering objective information about their environment and geological setting, archaeological association and state of preservation. Additional tangible elements of motif recording and spatial associations between the different motif relationships at Maski are also presented within this thesis.

There are also elements regarding the rock art of Maski that remain intangible at this present time. Despite investigative efforts to provide a temporal frame, using archaeological methods and stylistic sequencing for this form of rock art, the age range given to this spread of rock art in the landscape remains suggestive and often intangible. Additionally, the methods used in the documentation and analysis of the rock art at Maski in this thesis is not representative of a local, community involvement regarding interpretations about its past and current significance or meaning in this region. Therefore, more detailed reasons for specific motif production events and a local understanding about the wider social importance of rock art in this region remains more intangible than the means to analyse it as a body of material evidence for past human interaction with landscapes. The involvement of local groups who may have historical knowledge about the production and importance of rock art in this region is a possible avenue of future research, but is not pursued within this thesis. The following introductory sections elaborates on some key definitions occurring regularly during this thesis and describes the following thesis structure.

1.2 Definitions

1.2.1 Rock art or Rock-art?

As a starting point here is a statement from *An Introduction to Rock Art Research* (Whitley 2011).

“It consists of pictures, motifs and designs placed on natural surfaces such as cliff and boulder faces, cave walls and ceilings and on the grounds surface. Rock art is also sometimes referred to as cave art or *parietal* (wall) art. Regardless of the designation, the defining characteristics of rock art is its placement on natural rock surfaces, thereby distinguishing it from murals or constructed walls, paintings or carvings on canvas, wood, ceramics or other surfaces and free standing sculptures” (Whitley 2011, 23, italics in text).

While the crux of this definition concerning what rock art is, designs placed on a natural rock surface, is applicable in a general sense, there is an over reliance on the use of the term, ‘cave art’. Cave art as a definitive term cannot be disassociated from rock art traditions focusing on the European Palaeolithic. There are also many examples of rock art locations continuously discovered around the world contained within narrow rock shelters (Brooks and Wakankar 1976; Moya et al. 2014; Porcayo and Harman n.d.; Robinson and Ramadas 2004) and on open, exposed surfaces (Bahn 1995; Fabregas Valcarce and Rodriguez-Rellan 2013; Fossati 2002; Nash 2011). An interesting anomaly to the above understanding are instances of rock cut temples located in India, such as the Badami cave complex, Northern Karnataka, see Michell (2014) and the well-known temples of Ellora and Ajanta in Maharashtra (Singh and Arbad 2013). These cultural formations are neither murals nor constructed walls, but instead carved into the sides of natural stone formations and adorned with designs (Michell, 2014). Although rock cut temples can be understood within the definition above, misleadingly constituting a form of rock art, they are instead recognised as a form of rock cut architecture. Additionally, their visual effect and processes of production are vastly different to the form of rock art that is the focus of this thesis.

Moreover, there may be iconographic connections between designs documented on rock art panels, which are pervasive in other forms of material culture in similar cultural contexts. Geometric designs documented by Nancy Munn in her study of graphical systems amongst the Walbiri of Central Australia, demonstrate the multi-media nature of specific representational designs (Munn 1966, 1973). The rock art of the Torres Straits in North eastern Australia is contained within a wider symbolic system of portable objects and human scarification (Brady 2008). Rock art motifs in Scandinavia are chronologically

ordered using iconographic similarities between petroglyphs of ship motifs, which are also found on Danish engraved bronze razors (Bradley 2006; Bradley et al. 2001; Coles 2004; Kaul 1998). Given the disparate global and temporal nature of the examples mentioned above, it seems likely that designs incorporated within rock art traditions are often part of multi-media systems of graphic imagery applicable to wide swathes of material culture, often not accessible archaeologically. Finally, the initial definition emphasises the placement of designs on “natural” surfaces, without taking into account modifications made to a rock art panel prior to motif production, such as scraping or smoothing (Bradley, 1997).

Other intentional human markings included under the definition of rock art may also include pecked pits and grooves, along with cupules. Cupules arguably form some of the oldest, intentionally produced markings on stone in various global contexts, with multiple reasons postulated for their creation (Bednarik 2008; Kumar 1996; Kumar et al. 2006; Taçon et al. 1997). However, cupules in certain contexts can relate to other forms of human related activities such as crop processing (Bauer pers.comm. 2015), rather than intentional rock art traditions. A wider discussion of these enigmatic markings will not form part of this thesis.

Finally, I draw general attention to the conceptual difference in the terms “rock art” and “rock-art,” when said aloud the difference is unnoticeable. The introduction of rock-art is intended to be used as a portmanteau (Chippendale and Nash 2004; David and Wilson 2002; Read and Chippendale 2000; Taçon 1999; Taçon and Chippendale 1998), denoting a conceptual separation from western understandings of “art,” discussed in the next section 1.2.2 pp 25-28. However, this conceptual difference is not utilised by rock art researchers working within an Indian context and so the author will continue to use the term ‘rock art.’ Therefore, within an Indian context, rock art as a subject matter, consists of intentional designs produced through additive or reductive techniques onto rock surfaces, distinct from traditions of architectural construction. Rock surfaces which may become rock art panels are formed through natural geological processes, but may be subject to intentional human modification and are found in a range of landscape morphologies. The author acknowledges that the use of the term “rock art” is imperfect, yet seeks to align vocabulary used in this thesis with accepted terms in Indian scholarship.

In addition to using the vocabulary of “rock art” within this thesis, the terminology referring to concentrations of rock art panels over a specific geographical area will be stated as a rock art site. Some publications refer to areas of rock art concentrations as “locales” (Ouzman 1998; Robinson 2010), due to the challenges in observing when a rock art site ends within a landscape context. The same can also be said of other archaeological assemblages recorded in landscape contexts, such as sherd scatters. The difficulties in ascertaining the boundaries of rock art sites are linked to the historic debate of defining a site, explained in further detail in Chapter two, p35. Further technical definitions utilised frequently in this thesis can be found on pp 15-16. Having introduced some of the complexities in defining rock art, section 2.2.1 presents some historical trends of understanding inherent in rock art research.

1.2.2 But is it art?

Interpretations of rock art in the early 20th century was geared around a visual appreciation of European Palaeolithic cave art, deemed to be ‘art’ without a critical explication of “art” as a term, see Leroi-Gourhan (1964). Understandings of “art for art’s sake” were dominant in explaining why people were making marks on naturally occurring rock surfaces (Halverson et al. 1987). Descriptions of European cave art form the introductory chapters of acclaimed art history books (Gombrich 2011; Honour and Fleming 2009), artificially forging intellectual links between the cognitive beginnings of human creativity and continuity from the Palaeolithic to classical civilisations and European fine art traditions (Layton 1991, 3; Ucko and Rosenfeld 1967). These ideas are no longer considered an appropriate form of interpretation for rock art, yet the ambiguity in interpreting visual form in prehistoric contexts has led to the equally controversial “representation for representation’s sake” (Halverson et al. 1987, 66), despite its cyclical referential nature.

Today it is unacceptable to blanketly use theories and methods within rock art research that stem from historical research into European Palaeolithic cave art. Firstly, historical interpretations into the meaning of European cave art rest on the assumption that it is *the* oldest form of rock art. This assumption can no longer be upheld as recently recorded cave art in Maros, Sulawesi Indonesia,

dated to 43.9 ka demonstrates the global longevity of human markings on geological surfaces (Aubert et al. 2019). There are also plenty of similarly ancient and reliably dated examples from Australia (Aubert 2012, 574–575). Secondly, early appreciations of prehistoric European cave art were based upon a western aesthetic understanding of what “art” is, which has been comprehensively critiqued by investigations into the visual culture of small scale societies (Coote and Shelton 2005; Gell 1998, 2005; Layton 1991; Perkins and Morphy 2006). Objects and living things existing in specific cultural contexts are understood by certain communities to possess distinguishing qualities, forming an inseparable component of the roles they play and the subsequent value inscribed to them, without involving them in conceptions of “art.” See for example the visual composition of a Maori meeting house (Gell, 1998), or desired characteristics of Nilotic cattle (Coote 2005).

Thirdly, and specifically within archaeological research, definitions and understandings of the importance of visual qualities or ‘aesthetics’ in relation to art are more challenging to access, particularly when dealing with prehistory (Ingold 1996). In recent years, the concept of aesthetics has seen somewhat of a resurgence in archaeological thought (Barrowclough 2004; Gosden 2001; Renfrew et al. 2004), in particular the importance of colour and particular distinctive minerals within prehistoric society (Jones et al. 2002). Within rock art research there have been recent attempts to acknowledge the qualities that may have been significant to rock art producers, along with the function that these qualities may have had to the people who have produced rock art (Fernandes 2006; Heyd 1999, 2012; Heyd et al. 2008; Heyd and Clegg 2005). There are still conceptual tensions between rock art as “art” and the baggage of aesthetic understanding (Abadia and Morales 2008; Bradley 2009, 27–29) and it will not be discussed any further in this thesis. What is acknowledged is the great antiquity of making marks on stone that are increasingly documented in disparate contexts on a global scale and the possibility of the myriad reasons behind their production, not exclusively related to artistic practices.

In recent years technical advances have ensured increasing accuracy and speed in documenting rock art on a global scale (Aguilera et al. 2011; Berquist et al. 2018; Brady 2006; Chandler et al. 2005; Eklund and Fowles 2003; Mudge et al. 2012). However, means of incorporating rock art into existing research and

knowledge frameworks are not administered equally across the globe. In large areas of the world, the description of rock art sites and motifs still remains the primary objective (Campbell and Coulson 2009, 2012; Campbell and Robbins 2009; Coulson 2013). In these regions, documentation entails the creation of detailed records of rock art designs, form and content, production technique, evidence of periodic interaction and landscape placement at an inter-site and regional level.

It is often when satisfactory documentation is achieved that comprehensive interpretations as to the extended significance of rock art production can be convincingly argued. The initial documentation and recording of rock art is an important, primary stage of gathering information about its form, arrangement and contextual placement. However, the stages leading from documentation to interpretation, or meaning generation, are subject to debate, see Taçon (2001), Lewis-Williams (2006) and Layton (2000). From an empirical stance, at what point is there enough collected information to make interpretations about a body of rock art? This may be when the data a researcher has collected is enough to convincingly present a set of hypothesis or fulfil defined research objectives, without relying on attempts to record swathes of rock art in its completeness (Taçon 2001, 118).

However, even the initial documentation of rock art is argued to be part of an interpretative framework to find meaning in its contexts and content (Deacon 2012). Therefore, it is how well rock art documentation can stand up to scrutiny within theoretical frameworks to generate plausible meanings about its context and content (Lewis-Williams 1981). The procedure of acknowledging the frameworks in which a researcher conducts primary rock art documentation also factors into the amount of data necessary to make plausible suggestions as to its significance (Conkey 2010b, Lewis-Williams 1981). Certain sections of this thesis, see Chapter four, section 4.5 and Chapter five pp 138-140, detailing the methodology utilised in this thesis and a summary of the data collected are limited to providing an empirical account of some aspects of rock art documentation at Maski. Certain landscape types are only described and preference is given to interpreting rock art located at higher elevations. Additionally, some motif categories are also summarised in this thesis but not interpreted as to their landscape placement or archaeological significance. However, other aspects of

rock art, specifically relating to the spatial placement of rock art production coinciding with animal and anthropomorphic motif content details, are interpreted regarding their archaeological significance as a poignant landscape practice. Inferences are also made about the significance continued interaction with rock art at Maski through time. The reasoning for this division between empirical description and suggestive interpretation regarding the rock art at Maski is explained in more detail in Chapter five, pp138-139.

A well-accepted means of interpreting the significance and wider meaning for collections of rock art stem from ethnographic records or ethnoarchaeological arguments. These practices are especially prevalent in Australia and South Africa, see Layton (1992), May et al. (2010), Mountford (1964), Munn (1973) and Solomon (1992, 1997, 2008), for specific examples of rock art interpretations utilising contemporary or historic indigenous knowledge. Additionally, see Blundell et al (2010) for an understanding on how ethnographic insights can enhance the depth given to rock art research interpretations.

The use of ethnoarchaeological interpretation for decoding rock art motifs is also advocated within rock art research in India, as demonstrated in Ghosh (2007) and Pradhan (2012). Although investigations of rock art using historic or contemporary indigenous narratives are common in rock art research at a global scale, ethnoarchaeological investigation into the rock art of South India is beyond the scope of this thesis, which focuses on accepted archaeological methods of documenting and analysing rock art. However, for a wider critique of the theoretical utility and application of ethnographic or ethnoarchaeological interpretations regarding rock art in different contexts, see Bednarik (2011), Blundell et al. (2010), Brady and Kearney (2016), Lahelma (2008), Monney and Baracchini (2018) and Smith et al. (2012).

1.3 Thesis Structure

The previous sections in Chapter one have introduced some of the overarching challenges in understanding rock art, from issues of terminology to how it can be incorporated within understandings of intangible heritage. Section 1.3 describes the structure and intended outcomes of the following doctoral thesis investigating how rock art can be aligned with archaeological knowledge in a

specific region of South India, providing an enhanced means of understanding the past remnants of human activity. In succinct terms; What can an investigation into rock art contribute to current understandings of archaeology within a South Indian context?

To effectively answer the research question; “What can an investigation into rock art contribute to current understandings of archaeology within a South Indian context?” the initial chapters in this thesis examine historical research into rock art from a combination of theoretical and methodological angles. Following an explanation for an effective framework for understanding rock art, the majority of the chapters focus on site specific rock art documentation and analyses, in conjunction with an established archaeological research project. This thesis then moves on to evaluate the success and wider applications of the rock art documentation and analyses methodologies developed during the course of this research. It finishes with a discussion about the implications of some site specific results, making preliminary suggestions for how rock art can enrich understandings of the human past in South India on a regional scale, along with suggestions for future work.

Chapter two discusses archaeological understandings of landscape, with a focus on South India, exploring how notions of landscape are utilised within rock art research projects as an integral way of accessing meaning in rock art placement in globally disparate contexts. This thesis argues that rock art has been a significant practice in connecting past human cultural groups to localised landscapes in South India. Chapter two presents arguments about how rock art has been documented and interpreted as a significant landscape practice, utilising global examples. The repeated production of a specified set of common and interrelated motif forms, which also demonstrate visual changes through time, indicate that continual rock art production was a significant activity in formulating human attachment to the landscape at Maski. The continued interaction with motifs subsequent to their initial production also emphasises that rock art production traditions are not diminished in importance for negotiating how people interact with, and make sense of, familiar landscapes. Chapter two concludes by stating how landscape, when understood as a shifting and transformative medium through time, can complement an understanding of

interpretations of rock art content and location as negotiated through time and subject to change.

Chapter three presents current academic understandings of rock art within the Indian subcontinent, highlighting the increased applicability of focused documentation projects in terms of contextual settings and motif content, which can be complemented with critical analyses of motif identification and motif sequencing. Chapters two and three intersect to provide a framework to understand rock art as a significant means of communication across landscape settings, contributing to an enhanced understanding of past human activities within an Indian context.

Chapter four presents the fieldwork methodology developed and utilised within this thesis as an accessible, comprehensive, cost effective and time efficient means of documenting large quantities of rock art at defined spatial scales. It also introduces the author's involvement with MARP and demonstrates how the author provided technically focused, rock art documentation detail. Chapter four explains how the rock art recording methodology was constructed to complement the wider aims of the MARP project in examining the nature of human activity patterns and landscape transformations occurring throughout the prehistoric and historic periods in South India. This chapter demonstrates how rock art can be documented as part of a wider landscape assemblage of archaeological human activity patterns and incorporated into established archaeological research projects.

A summary of rock art documentation results constitutes the material presented in Chapter five. It provides contextual details of variably sized rock art sites and quantitative details of panels and motifs within different landscape settings. It demonstrates the extent of rock art as a production practice within a small scale region and identifies key landscape areas which demonstrate dense rock art content accumulations.

The results presented in Chapter five are analysed in more detail in Chapters six and seven from two different scales. Chapter six presents a means of analysing rock art at a macro (or extended) scale, assessing spatial patterns of landscape placement in relation to archaeological clusters of activity zones. Suggested findings indicate a spatial proximity to previously occupied rock

shelters with ephemeral prehistoric material assemblages. Additionally, quantitative analyses of motif proportions in landscape settings indicate a corpus of motif production focusing on bovine and anthropomorphic motifs, along with other varied faunal motif content. This chapter presents the grounds for highlighting the longstanding significance of anthropomorphic and bovine relationships inherent within the landscape at Maski.

Chapter seven presents results of an off-site image enhancement methodology from digital photographs of specific panels at Maski. It encompasses a study of rock art as a smaller, more focused scale than Chapter six. Chapter seven evaluates the utility of conducting image enhancement analysis on rock art panels as a means of justifying primary fieldwork documentation procedures. Results of off-site image enhancement include new motif discoveries, enhanced motif clarity and discernible interaction phases. This chapter also presents a quantity of superimposition sequencing on select panels at Maski, in an effort to provide a degree of temporal control to the corpus of petroglyphs present in the landscape.

This chapter primarily supports off-site, post-fieldwork methods of image enhancement of petroglyphs, an area of inquiry which has been underdeveloped, especially compared to image enhancement of additive rock art technologies. A secondary result explained in Chapter seven is the identification of a significant amount of human interaction with the rock art at Maski through time after the initial production phase specific motifs. Thirdly, this chapter makes suggestive comments about specific bovine styles relating to the South Indian Iron Age, when identified in spatial proximity of certain archaeological assemblages containing Iron Age diagnostic materials.

Chapters eight and nine form the discussion and conclusion elements of this thesis. Chapter eight draws together methodological and analytical results taken from Chapter four through to Chapter seven. It discusses the utility of conducting onsite and off-site rock art recording methodologies. It also discusses how the spatial relationships between rock art sites and other diverse archaeological assemblages, coupled with a technical examination of panel surfaces and phased motif interaction in the Maski landscape, can aid in presenting an understanding of rock art production as a significant communication mechanism, situated in place through time. Additionally, Chapter

eight also discusses how perceived interaction phases with certain motif forms can be used to interpret the transformative relationships between humans and animals, namely cattle, during the prehistoric period in Karnataka, South India. Finally, Chapter eight discusses the continuing challenges inherent in temporally sequencing rock art at Maski.

Concluding statements are found in Chapter nine, advocating the incorporation of rock art documentation and analysis procedures into archaeological research projects. It states preliminary interpretations regarding the significance of rock art at Maski as a means of visualising the transformative relationships between humans and animals. It also suggests how these findings can intersect with wider understandings of South Indian archaeology. Conclusions of this thesis also tie in understandings of rock art as an intangible heritage resource, see pp 18-22, in need of conservation attention. Chapter nine also presents limitations of this research project and possible ideas for future work.

Chapter Two. Incorporating rock art into the landscape

It is imperative that any archaeological study pertaining to rock art needs to acknowledge the multitude of understandings concerning landscape. The aims of this chapter are twofold: firstly, to add to the global discussion regarding the production of rock art as a significant activity in negotiating culturally diverse understandings of landscape. Secondly, and more specifically, this chapter sets out a means of framing rock art production and interaction in a specific Indian context at Maski, Northern Karnataka as a landscape activity inseparable from its context.

These aims are achieved in the following way. Firstly, section 2.1. describes the many understandings of landscape historically utilised within archaeological research frameworks, in both theory and method. Secondly, section 2.2. explores how certain landscape frameworks have contributed to specific understandings of archaeological knowledge pertaining to South India and explores some key archaeological features of the South Indian landscape. Section 2.3 explicates how recording methods, connected to archaeological investigations of landscape, have benefitted documentation efforts of rock art as a landscape activity, whilst section 2.4 describes how understandings of landscape within rock art have structured interpretations about the wider significance of rock art accumulations. Overall, this chapter indicates how landscape, when incorporated into a study of rock art in a specific region, can connect archaeologically accepted understandings of South Indian Prehistoric - Early Historic Transitions with contemporaneous rock art research.

2.1. Intersecting rock art research into archaeological understandings of landscape.

This section critiques a selection of theories and methods utilised during archaeological investigations of landscapes. Archaeology as a subject concerned with the material remains of human population, located in time and space has always had an implicit association with landscapes, although how landscape is understood and utilised in research frameworks has changed over time (Anschuetz et al. 2001). Explicit understandings of what constitutes “landscape” and how to usefully study it, in order to draw out information about past human

practices, first emerged in the mid twentieth century (Darvill 2008, 60). Drawing on geographical principles, scholars in the UK sought to investigate both the movement of past human populations and the identification of archaeological features in relation to specific historic settings (Crawford 1953; Fox 1923; Hoskins 1955). In US scholarship, there was a growing interest in regional approaches to settlement studies. Willey's work in the Viru Valley, Peru developed a broad settlement typology based upon observations of dwellings, cemeteries, pyramids, hilltop features and compounds (Willey 1953, 1956).

Under the paradigm of New Archaeology, landscape investigations were led by data gathering exercises to test hypotheses about the nature of human adaptive existence in relation to an environmental setting (Binford 1962, 1965). Resulting research questions were aimed at modelling a range of human behaviours based upon group reaction to an external set of variables, primarily focusing balancing resource exploitation with energy expenditure (Darvill 2008, 62). Site catchment analysis looked at the maximum numbers of people that could be supported in specific landscapes (Roper 1979; Vita-Finzi et al. 1970). Middle range theory was developed to understand debris left behind in the archaeological record by hunter-gatherer communities as a human response to environmental factors, incorporating taphonomic considerations, ethnography and experimental archaeology (Binford 1962, 1965, 1983). There were also investigations in prehistoric understandings of economic organisations or structures which could be evidenced in the archaeological record (Clark 1960; Renfrew et al. 1974; Vita-Finzi et al. 1970). These analysis methods and resulting theories about developing cultural systems oriented about evolving or devolving social complexity. At this time archaeological investigations were incorporating an increasing array of scientific techniques deriving from botany, entomology and soil science as part of interdisciplinary research projects, yielding useful information about the environmental setting inhabited by past societies (Binford 1980, 1982)

Archaeological investigations incorporating rock art as a subject matter during the period when archaeology was becoming increasingly concerned with scientific rigour are minimal. Rock art research proceeded as a means of investigation quite distinct from archaeological lines of questioning (Bostwick 2005, 68). Rock art studies centred on broad iconographic descriptions within a

eurocentric stylistic vocabulary based in art history and tentative interpretations of hunting magic (Heizer and Baumhoff 1962; Leroi-Gourhan 1964, 1982). These are now considered to be outdated forms of archaeological reasoning. Additional advances in scientific dating methods, for example radiocarbon dating techniques, were increasingly available to archaeologists during this time and inaccessible in rock art studies; subsequently, chronological ordering of rock art was consistently open to criticism. The continuing dilemmas in rock art dating are described in Chapter three, pp 96-97 and Chapter eight, section 8.3.3. Furthermore, in an archaeological paradigm prioritising human development through environmental adaptation, images produced by past cultures were arguably seen to possess little value (Bacelar Alves 2013, 264).

The historical marginalisation of rock art research within archaeological frameworks is well documented (Bacelar Alves 2013; Conkey 2012; Whitley and Loendorf 1994) and need not be discussed in further detail. There are two aspects of the historical trajectory in archaeological research that revealed avenues for the incorporation of rock art in research frameworks. These avenues of possibility relate to the methodological incorporation of rock art as a recordable artefact within archaeological surveys and paradigmatic shifts within the discipline of archaeology itself. Whilst landscape studies honed in on the ecological and environmental relationship of sites within an immediate setting, especially in terms of hierarchical organisation, it became increasingly clear that human activity was not limited to the traditional notion of the bounded archaeological site (Cherry 1983; Dunnell 1992; Foley 1981).

Rob Foley promoted the inclusion of off-site archaeology in an analysis of spatial relationships between artefact scatters and accumulations, filling in the conceptually “empty” space between sites (Foley, 1981). Durable but fragmented artefact scatters, including ceramic sherds and flint, could be incorporated into archaeological research frameworks, offering an increasingly precise means of recording small scale activities occurring in the landscape, as the whole landscape became a unit for analysis (Hodder and Orton 1976). This development arguably enhanced the possibility for the inclusion of rock art as a valid form of material to be recorded in archaeological investigations, as a form of material assemblage distinct from others forms of material culture traditionally grouped in “sites”.

The second development in archaeological theory, further encouraging the inclusion of rock art in archaeological landscape research, involved a paradigmatic shift within the discipline itself. With post-processual approaches, there was an increasing awareness that humans are social beings able to engage and interact with each other and their surroundings in ways that did not immediately connect to environmental concerns (Costall 1997; Darvill 2008, 32; Hodder 1982, 1991). The use of ethnography in anthropological research increasingly highlighted the multitude of ways that societies utilise substances and objects, exclusive of environmental adaptive processes. For example, Peterson (1970), in his study of Central Australian Aboriginal communities argued that specific ceremonies incorporated fire in rituals that aimed to solve intra-community conflict. Ethnoarchaeological studies into ceramic designs, forms and patterns were argued to replicate or negotiate structures in a culturally specific social order (Hodder 1982; Longacre 1991; Sterner and Gavua 1988). Post-processual archaeology emphasised the necessity of investigating archaeological landscapes as cultural products, connected to social and symbolic concerns of past human groups, influenced by modern notions of landscapes as ideological and illusory images developed by cultural geographers (Cosgrove 1984, 1995; Cosgrove and Daniels 1988).

Whilst archaeological approaches to landscapes were criticised as drawing singular, reductive interpretations regarding culture and the environment, post-processual approaches have favoured an acknowledgement of contested or multiple perceptions of landscapes (Bender 1993; Strang 2008). Evidence for the multiplicity of landscape perceptions can be taken from any number of compendiums that hold landscape as their main concern (Ashmore and Knapp 1999; Bender 1993; David and Thomas 2008; Ucko and Layton 1999). Landscapes can be understood from a vast global array of archaeological, historical and anthropological viewpoints, informing the myriad ways in which the identifiable elements within landscapes constitute and are constituted by social domains of human life (Bauer 2011; Cummings and Whittle 2004; Hodder 2013; Johansen 2011).

Ingold's seminal work *The Temporality of Landscape*, argued for a more explicit view of what landscape meant and how it should be utilised in archaeology, refuting a trajectory of comprehending landscape as a purely

cultural image (Ingold 1993, 154). Instead, “the landscape is the world as it is known to those who dwell therein, who inhabit its places and journey along the paths connecting them” (Ingold 1993, 156). Drawing upon this understanding of landscape, combined with explanations of temporality he formulates the notion of “taskscape,” the array of related activities carried out by a skilled agent in an embedded setting (Ingold 1993, 158). He argues that landscapes are in a continual process of becoming, based upon the activities of agents who conduct embedded actions in the present with a material connection to both the past and future (Ingold 1993). For archaeologists evidence of human dwelling is materially embedded in the landscapes they study, with an awareness of taskscape and performed places, of how past human societies perceived their own temporality, evidenced through objects and landscape features. It is into this framework that a study of rock art can now be seen as a means of purposeful action over time, created in and creating a material and cultural place.

Archaeological notions of dwelling in a landscape are often taken from a philosophical stance acknowledging the subjective, personalised experience of the body being in the world and the experience of conscious knowledge gleaned from it (Heidigger 1962; Merleau-Ponty 1996). Human experience in the world was not an assumption to be ignored as a common place affair, but could be subjected to examination by a critical approach to dwelling through sense perception (Merleau-Ponty 1996, 213). Since archaeology is primarily a material endeavour it should aim to understand the materiality of human existence through a conscious engagement with the material remains in the world (Brück 2005, 65). The main advocate of the phenomenological approach to landscapes is Christopher Tilley, whose research focuses on the process of movement through prehistoric landscapes in the UK as a three-dimensional and sensuous activity, utilising the human body as a biological correlate to the bodies of people in prehistory (Tilley 1994, 24–36). By walking through a unit of landscape he critically assessed the relational placement of embedded prehistoric monuments such as henges, barrows, curses, dykes and ancient field boundaries in the processes of formulating prehistoric social identity, connecting with the prehistoric earth (Tilley, 1994, 2010). See also Bender et al. (2007) and Hamilton et al. (2006) for other examples of phenomenological research frameworks.

Archaeological accounts inspired by phenomenological reflections aim to enliven the archaeological past beyond the page and make compelling reading as to the interpretations of sacred, place making landscapes of the Neolithic and Bronze Age in northern Europe. There are concerns that the presentation of archaeological research relying too heavily upon phenomenology frameworks is not a valid form of knowledge generation and is regarded with variable degrees of disdain (Barrett and Ko 2009; Fleming 1999, 2006).

Firstly, phenomenological research prioritises visual accounts of landscape as a dominant form of sensory experience, although this has attempted to be readdressed by archaeological research prioritising other sensory research frameworks, see Jones et al. (2002), Rainbird (2002), (2008) and Thomas (1993). Secondly, even if we accept the notion that landscapes are experienced in a holistic sensory fashion and humans share the same biological mechanisms of sense awareness, the experience of the senses is one that has been socially conditioned in localised ways, so the researcher still has no way of knowing the accuracy of their phenomenological interpretations (Brück, 2005, 55). Finally, some phenomenological accounts investigate structural monuments in isolation, as part and parcel of an awe-inspiring landscape. There is little explicit acknowledgement of the materiality of more mundane and quotidian activities evidenced in the landscape in the form of eroded ceramic sherds and weathered lithics, or how landscapes can be used in subversive ways, which may have changed through time (Brück 2001; George and Kurchin 2018). Nevertheless, phenomenological understandings of landscape have influenced the methods of rock art documentation and wider interpretations as to its situated meaning, especially in circumstances where ethnographic principles are not applicable.

The degrees to which humans define, utilise and understand landscapes as places do not remain static through time. This means of comprehending landscapes is relevant at both an inter- and intra-group level dependent upon notions of gender, age, caste, class and economic situation (Bender, 1993, 2–3; Bender et al., 2007; Conkey and Gero, 1991). In order to provide nuanced accounts of what constitutes specific landscapes, differing interpretations must be understood to be held in tension where multiple comprehensions are considered equally valid (Gosden and Head 1994; Knapp, 1996, 148). For

example, multi-disciplinary investigations with coastal Sami communities, focused on rebuilding prehistoric Sami landscapes, posit multiple means of understanding and interacting with the material components of landscape, partially divided along gender lines (Mulk and Bayliss-Smith 1999, 373). However, within engendered landscape interpretations there are also overlapping conceptions of landscape based upon differing degrees of historical, magical, sacred or political knowledge (Mulk and Bayliss-Smith 1999, 374). Archaeological and anthropological research in Queensland, north eastern Australia has argued for differential access to landscape knowledge split between gender divisions and lifecycles, which can be accessed through structured initiation rites (Morwood 1987, 374). Multiple and contested understandings of landscape within a south Asian context are significant to setting the regional context of this thesis, which is now discussed in section 2.2.

2.2 Landscapes in the archaeology of India

The following section introduces how landscapes have been understood within the contexts of archaeological investigation in the Indian subcontinent. It focuses more specifically on archaeological features present in South India in order to provide a framework for the intersection of rock art research from a landscape-based perspective.

There is a long and fruitful history of archaeological research in India regarding the development of major civilisations within the Indian subcontinent, from an investigative tradition originating in colonial scholarship (Chakrabarti 1988). Research has focused on the identification, nature and spread of sites encompassing the Indus civilisation in Northern India from 2500 BC (Coningham and Young 2015; Guha 2005; Possehl 1993, 2002; Wheeler 1960). Additionally, research into the architectural remains relating to the development of Buddhism as a major world religion are integrally connected to the spread of the Mauryan empire throughout the subcontinent (Fogelin 2006, 2015; Thapar 1966, 2012). Additionally, the perceived fragmentation of the Mauryan empire around 300 BC is followed by the development of regional kingdoms such as the Pandyas, Cheras and Cholas and the material culture specialisms presented as a feature of each kingdom (Kulke and Rothermund, 2016; Singh, 2008). For example, the

technology and aesthetic form of producing high tin bronzes is considered a characteristic feature of the Chola Empire (300 BC – 1200 AD) (Srinivasan 2016a, 2016b).

The quotidian ceramics, lithics and other artefacts of everyday life remained relatively absent from the literature, therefore constraining the archaeological construction of India's past (Trautmann and Sinopoli 2002, 500). There are sporadic colonial accounts of investigations into the prehistoric past of India, demonstrated by Foote (1887). There is growing evidence of the longevity and complexity of human occupation within the Indian subcontinent from the Middle Palaeolithic until the modern day (James and Petraglia 2005; Korisettar 2007; Petraglia et al. 2003; Wheeler 1948, 1960). More recently, investigations into the archaeology of India have shifted from overviews of dominant power systems, be they key civilisation markers or the influence of religious doctrines, to the complexities and variability inherent in the material remains of past human practices.

More specifically, questions have been asked of the roles of resource production and manipulation in local and global networks of trade or exchange within the Indian subcontinent, the social implications arising from these networks, such as the trade of forested products (Morrison and Lycett 2013), and the growing evidence for prehistoric maritime trading links (Ray 2003). The Indian subcontinent is now seen as an interconnected region, the origin of which extends into the prehistoric period (Abraham et al. 2013; Gurukkal 2010). A comprehensive study of developments in archaeology within the Indian subcontinent is too broad for the scope of this chapter; the preceding paragraphs provide a flavour of archaeological knowledge regarding India as a whole. The rest of this section focuses on the generation of archaeological knowledge with a landscape focus in South India.

The work of Nilakanta Sastri, entitled *A History of South India*, was the first compilation of knowledge synthesising the extent of archaeological and historical knowledge present in South India. It focuses on detailing a historical chronology, integrally linked to the Mauryan spread of power from North India during the 4th century BC, through religious, administrative and military means (Nilakanta Sastri 1966). This volume also draws attention to the lack of systematic archaeological surveys conducted throughout South India and the paucity of knowledge about

prehistoric people and their material culture, apart from comments about the movement of various ethno-linguistic groups through time (Nilakanta Sastri, 1966, 65).

Scanty observational surveys had been conducted in South India since the 19th century and artefacts were collected from numerous locations; see Foote (1887) for numerous examples of material culture collected in South India arguing to be representative of the Palaeolithic and Neolithic periods. It is beyond the scope of this thesis to address the wider historical reasons for the incremental increase in interest in South Indian prehistory, but see Chakrabarti (2003) Hicks et al. (2013), Selvakumar (2010) and Settar and Korisettar (2002) for arguments concerning the application and relevance of archaeological knowledge within the Indian subcontinent. In the past three decades, there has been a growth of international and local archaeological research projects involving collaborative work between universities, government heritage institutions and local individuals. Through a series of exploratory surveys and multiple extensive seasons of excavation fieldwork, these projects have sought to understand the complex webs of dynamic human interaction present in the regional landscapes of South India. Recent archaeological research in South India provides useful insights into the significance of ashmounds and megalithic structures as archaeological phenomena, which occur repeatedly across the landscape of Peninsular India, concentrating on the modern states of Karnataka and Andhra Pradesh, see section 2.2.1 below.

Archaeological research projects situated in the wider area of the Deccan Plateau are given special attention in this thesis, the reason being that they provide a way of presenting existing archaeological knowledge about the region, providing a potential chronological and interpretive framework for the petroglyph bruising presented in subsequent chapters. The region of Northern Karnataka is semi-arid, located on the southern edge of the Deccan Plateau, a series of granite and metamorphic formations which define bands of hilly terrain, outcrops, inselbergs and open, low lying land. The environment is arable to a certain extent, making for a visually open landscape interrupted by striking features (Sinopoli et al. 2009, 13). The vegetation of the area has been greatly modified by millennia of grazing, agriculture and habitation. In addition, the rugged topography is rich in metallic resources such as iron and gold, which have been systematically

mined for centuries (Sinopoli et al. 2008, 2009; Srinivasan 2016c; Srinivasan et al. 2009). Additionally, there is in-field evidence for archaeometallurgical processes occurring at many locations in Karnataka. Quantities of slag dumps and crucible remnants at sites such as Tintini, Gulbarga district, Manchur and Devagondanhalli in Raichur district highlight the diversity and longevity of archaeometallurgical processes in the region, although temporally diagnostic ceramics observed at these sites were rare (Srinivasan, 1996, 171–173).

Recent academic pursuits in South India include regional surveys around the Tungabhadra Corridor, investigating transformations in the landscape through the 3rd millennium BC up to the decline of Vijayanagar in the sixteenth century AD (Boivin et al. 2007b; Fritz and Michell 1986; Fuller 2006; Sinopoli et al. 2008, 2009). There have also been other investigations in the Bellary and Raichur districts of Karnataka (Allchin 1960; Bauer et al. 2007; Boivin 2004b; Boivin et al. 2002; Johansen 2008). Taken as a whole, these research projects demonstrate the utility of conducting regional landscape surveys that incorporate features of the natural environment, combined with archaeological features, as a means of investigating the multi-faceted relationships inherent in landscapes. Specific achievements of landscape-focused archaeological research projects in addressing the prehistoric processes of landscape construction and manipulation in South India are discussed for the remainder of section 2.2, pp 42-50.

Initial investigations into the landscape of the Tungabhadra Corridor were implemented through the Vijayanagara Research Project (VRP), headed by John. M. Fritz and George Michell along with local collaborators, namely Nagaraja Rao and the Archaeological Survey of India (ASI) from 1985-2001. Main research priorities were to document all archaeological features that remained from the great imperial city of Vijayanagara, from monumental temples to dilapidated structural ruins (Verghese, 2004). Successes of this project lie in the interpretation of the vast Vijayanagara Empire, exerting power through imperial control over landscape transformations, religious practices and aesthetic traditions (Fritz 1986; Fritz and Michell 1986; Sinopoli and Morrison 1995). The Vijayanagara Empire represents a cosmopolitan interaction of populations within specific socio-cultural systems that are recognisable in India today. Project goals of the VRP prioritised religious standing historical architectural remains and

traditions (Verghese, 2004), whilst the Prehistoric and Early Historic material evidence of the Tungabhadra Corridor remained relatively under-researched.

Regional investigations into the landscape of the Tungabhadra Corridor can be divided between historic and prehistoric research priorities. Firstly, there were questions about the nature of the relationship between the core and the hinterland of Vijayanagara through the Vijayanagara Metropolitan Survey (VMS) (Morrison 1991; Sinopoli 1993). Secondly, how the prehistoric activities around the Tungabhadra river related to the development of technological, craft and economic specialisms involved in dynamic cultural processes (Sinopoli et al., 2009, 2008). The latter question arising from progressive years of research into the Tungabhadra Corridor, culminated in the formation of the “Late Prehistoric and Early Historic Landscapes of the Tungabhadra Corridor” project (LP/EHLTC) co-directed by Carla Sinopoli (University of Michigan), Kathleen Morrison (University of Chicago) and R. Gopal (Karnataka Directorate of Archaeology and Museums). This project explored the social and political changes that took place around the Tungabhadra Corridor over 1500 years during the Late Prehistoric and Early Historic transition in South India (1800 cal BC – AD 300). The range of archaeological features surveyed includes; habitation sites, agricultural features, rock art sites and megalithic mortuary complexes, with dates spanning the mid-2nd millennium BC (Neolithic- Iron Age) and subsequent Iron Age to Early Historic Periods, ranging from the 1st millennium BC to the 1st millennium CE (Sinopoli et al., 2008).

The LP/EHLTC project is one example of a plethora of new archaeological research designs aiming to broaden an understanding of the prehistory of South India. Additionally, research has sought to understand factors involved in the development of agricultural processes in Peninsular India, independent from agricultural development in the northern regions (Boivin et al. 2007b; Fuller 2006). Paleobotanical results demonstrate that wild varieties of mungbean and urd were consistently exploited from the late 3rd millennium BC and that numerous indigenous domesticated millets are also present throughout South India (Fuller, 2006). These edible crops appearing in the archaeological record of South India do not co-occur in contemporaneous archaeological deposits in the north west region of India, implying that these crops mark the beginning of crop cultivation systems specific to South India (Boivin et al., 2007b, 3). It is argued that the 3rd

millennium BC through the 1st millennium BC in South India was characterised within a transitional period of hunting and foraging wild taxa in an opportunistic manner, whilst simultaneously investigating means of producing crops and growing levels of pastoralism (Bauer, 2008). The following section 2.2.1 focuses on three forms of archaeological features namely ashmounds, megaliths and habitation patterns documented in South India. These features provide contextual evidence for connecting transitional agro-pastoral processes, present in the Deccan landscape, with ideas about complex social changes occurring during the prehistoric period in South India.

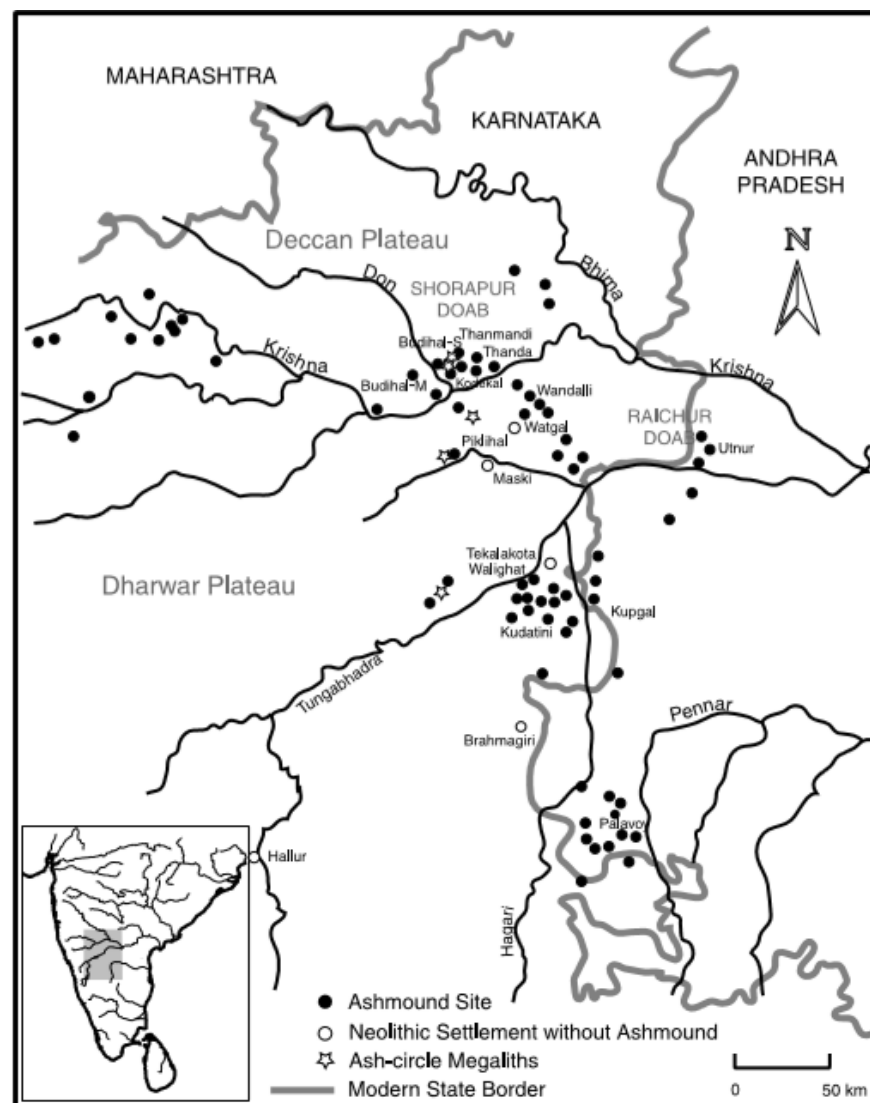
2.2.1. Archaeological features of South Indian prehistory and early historic transition.

Ashmounds

The ashmounds of South India have historically attracted the attention of explorers and researchers beginning in 1843 with T.J. Newbold, who noted the large mounds of ash and accompanying local beliefs that they were the burnt bones of ancient giants (Newbold 1843). A more contextualised account of the ashmounds was produced by F.R Allchin in his 1963 publication '*Neolithic cattle-keepers of South India: a study of the Deccan Ashmounds*' (Allchin 1963). The ashmounds are large mounded features consisting of stratified deposits of purposefully burnt and vitrified cattle dung and other culturally modified soils containing a variety of artefacts, along with clear layers of culturally sterile soils that cap intentional burning episodes (Johansen 2004, 309). Additionally, a small number of radiocarbon dates taken from a number of ashmound sites give a range of burning episodes from the mid-3rd millennium to the mid second millennium BC, in keeping with the South Indian Neolithic period (Johansen, 2004, 314).

Explanations for the purposes of the ashmounds have ranged from the fantastical to the ritual and finally to the routine activities of refuse dumping, cattle pens or iron smelting (Allchin 1963; Paddayya 1991). A diverse range of archaeological debris are found in conjunction with ashmound features; dense scatters of lithics, habitation sites, stone axe production, rock art shelters, along with features that have been interpreted as cattle penning areas (Boivin, 2004b;

Boivin et al., 2005; Brumm et al., 2006; Johansen, 2004). The broad locations of ashmound sites and spatial associations with megalithic and settlement sites are displayed in map 2.1 below. It is interesting to note that as of 2019 no evidence of ashmound assemblages or debris has been located in the immediate Maski landscape. Whilst ashmounds remain a key feature of large scale landscape modification associated with the South Indian Neolithic, their absence in the survey region described in this thesis means they will not be discussed beyond this section.



Map 2.1 displaying the spatial relationship between ashmounds, megaliths and Neolithic settlements (Johansen 2004, 314, fig 1).

Recent interpretations as to the presence of ashmounds has also addressed their significance as a form of monumental architecture, integral to

communicating ideas about Neolithic social life (Boivin 2004b; Johansen 2004; Paddayya 1991; Rajala et al. 2004). Preliminary GIS analysis has demonstrated that supposed Neolithic sites of Bellary and Kurnool districts have greater viewsheds than non-sites, in excess of 10,000m (Boivin, 2004b, 240), indicating a visual relationship between Neolithic settlement sites and ashmound locations. By assessing the inter-visibility of different aspects of Neolithic activity in relation to the ashmounds, Nicole Boivin and colleagues have argued for a purposeful transformation or remodelling of the Neolithic inhabited landscape through the activities of prehistoric communities (Boivin 2004b; Boivin et al. 2005; Brumm et al. 2006; Shipton et al. 2012)

Additionally, isolated examples of interaction post-dating the Neolithic period have been recorded from ashmound locations. These include a sarcophagus burial with Iron Age ceramics at the Kudatini ashmound, 30km west of Sangankallu, the ashmound itself is also entangled in landscape archaeological features reminiscent of the Iron Age and Early Historic transition periods (Boivin, 2004b, 246). Whilst it would appear that ashmounds are central features to Neolithic lifeways in their active role in cementing agro-pastoral landscape production practices, the incorporation of Iron Age and Early Historic material culture both in and around the ashmounds suggest they played a part in the social negotiation of landscapes in the later Prehistoric periods of South India.

Megaliths

The importance of ashmounds and associated materials are further exemplified by the construction of a megalithic monument on top of an existing ashmound in the Shorapur Doab just north of the town of Shahpur (Meadows 1853, 393–396), along with documented examples of dung ash being incorporated into megalithic monuments enclosing stone circles and dolmens (Meadows 1862). There is a strong connection between the presence of Neolithic ashmounds as active objects shaping Neolithic society through their visible monumentality, and the emerging megalithic traditions of the Iron Age, discussed below.

Megaliths have long been considered a prominent archaeological feature of the South Indian Iron Age, and research has gone into classifying their type

and function (Wheeler, 1948). They have previously been understood as reflecting territorial boundaries of disparate chiefdoms emerging throughout the Late Prehistoric and Early Historic periods in South India (Brubaker, 2001; Moorti, 1994). There has also been increased efforts in the state of Tamil Nadu to classify and chronologically order megaliths, especially focusing on megalithic burial features (Haricharan et al. 2013). The vast ranges of size, spatial distributions, associated archaeological and natural features and material assemblages suggests they are part of an increasingly complex web of relationships within the Iron Age social activities in South India.

An example of a systematically surveyed megalithic complex has been conducted by Professor Andrew Bauer (Stanford University) and colleagues working at Hire Benakal, a megalithic mortuary complex in Karnataka connected to the Tungabhadra River. By spatially mapping archaeological features associated with megaliths, coupled with statistical analyses of megalithic capstone size (0.2-4.5m³) and height from the ground (0.23-3.13m), interesting patterns have been noted regarding the cultural processes constructing Iron Age access to social space and ability to mobilise labour (Bauer 2011; Bauer and Trivedi 2013). There are spatial connections between naturally occurring, but intentionally modified, rock pools/water retention cavities and the proximal location of sizeable megalithic structures, whilst smaller and less regular megalithic structures are located around the periphery of the complex (Bauer, 2011; Bauer and Trivedi, 2013, 53–56).

The patterns presented at Hire Benakal suggest a level of control between the appropriation of water sources, of high importance in an agro-pastoral/selective agricultural economy, with the ability to mobilise labour to expand water retention facilities and construct megalithic monuments (Bauer, 2011, 104). More recently, arguments have been made for the high importance of water availability in an agro-pastoral, selective agricultural economy within semi-arid geographies, that facilitated the need for water retention and maintenance strategies (Johansen and Bauer 2018). Control over specific resources is arguably linked to the development of social inequalities and monumentally visualised through megalithic construction (Johansen and Bauer 2018). Memorial architecture in the form of megaliths at the site of Kadebakale on the banks of the Tungabhadra river continued to be venerated and rejuvenated

for hundreds of years after the abandonment of the settlement itself (Johansen, 2011, 210). A similar practice is hypothesised to the site of Maski in the Raichur district of Karnataka (Thapar, 1957), emphasising the significance of cultural continuity in the Iron Age - Early Historic landscapes of South India. As the location of Maski is the central focus of this thesis, a history of research in the area is discussed in more detail in Chapter four, pp 104-116.

Visible evidence of megalithic concentrations may suggest symbolic importance, with an extraction of stone as a substance for the expansion of water storage and utilised as the raw material for commemorative architecture (Bauer, 2011, 106). Therefore, the social significance of megalithic features is due to the active rather than reflective role they play, in that their very creation produces and negotiates social relations, which are maintained by their subsequent existence as monuments (Bauer, 2011, 86–87). Within these places, a multitude of activities both utilitarian and ritualised were enacted, resulting in a multiplicity of perceiving meanings about places, demonstrating the potential of incorporating megalithic studies within the wider corpus of Iron Age production and consumption activities (Johansen, 2011).

Settlements

Whilst ashmounds and megaliths are two forms of monumental constructions within South India, arguably demonstrating transitional prehistoric manipulations and understandings of landscape, archaeological evidence of settlement use also demonstrate how landscape was utilised and transformed during prehistory. Research projects, mentioned in section 2.2, and the recent addition of MARP (see Chapter four, pp 109-116) have sought to investigate the spatial, temporal and activity-based relationships for different settlement patterns through observational or systematic survey, surface collections, topographic mapping and excavations.

Settlement evidence attributed to the Neolithic period of South India are usually located in weathered hilltop terrace formations, as at Tekkalakota, Budihal, Brahmagiri and Sanganakallu, complete with micaceous ceramic wares, flaked chert tools and modified settlement terracing (Ansari and Nagaraja Rao 1969; Korisettar 2002, 168–169; Nagaraja Rao and Malhotra 1965; Paddayya

1993; Wheeler 1948). The prevalence of ground stone axe manufacture is also considered a diagnostic element of the South Indian Neolithic (Brumm et al., 2006). Additionally, there is also evidence for the spatial patterning of refuse at Neolithic sites, and possible animal butchery practices (Paddayya 1993; Paddayya et al. 1995). Interpretations about agricultural practices for subsistence purposes have already been mentioned above in section 2.2 and are not discussed any further. There are uncertainties regarding the decline or possible abandonment of Neolithic habitation sites, postulated to reflect a response to wider environmental concerns with water availability, and the processes involved in settlement diversity and dynamics, emerging during the Iron Age period in South India (Roberts et al. 2016).

Settlement practices attributed to the Iron Age period in South India, (1200 cal BC – 300 BC) arguably display an intensity of landscape use, resource extraction and agricultural development. The site of Kadabakele displays evidence of extensive landscape manipulation of hills and slopes to form terraces for habitation and agricultural purposes (Sinopoli et al. 2009, 26). From the rugged outcrops dense artefact scatters of ceramics consisting of Polished Black Ware, Polished Red Ware and Black and Red Ware (BRW), iron artefacts and semi-precious stone beads have been recovered. These provide evidence about the inclusion of Iron Age communities in long-distance economic relations and social access to exotic goods at an intra to inter-site level (Johansen 2010). Additionally, structural remains at the nearby settlement sites of Rampuram and Bukkasagara, are possible indications of formalised access routes to settlements, indicating a control over mobility within settlement zones (Johansen 2011, 212–213).

Zooarchaeological remains at both Neolithic and Iron Age settlement sites display faunal bone evidence of wild taxa such as deer and antelope and possible wild bovine forms, along with high proportions of domesticated bovines and caprines (Roberts et al. 2016, 585). Butchery patterns demonstrate that these species were consumed relatively regularly, and that specific moments of consumption were incorporated into ceremonial or ritual activity within or close to settlement areas, accompanied by burning episodes and special depositional or burial practices (Bauer 2007; Morrison et al. 2016, 250). It is also possible that animals were domesticated for the purposes of traction in the transformation of

landscape conditions for agricultural use, with faunal evidence to support this coming from domesticated bovine remains at Kadebakale (Bauer 2007, 178). Additionally, faunal remains suggest that cattle were one form of herd animal managed for the production of secondary products, such as milk for human consumption (Bauer 2007, 260). The growing body of evidence from zooarchaeological analysis at Late Prehistoric - Early Historic transition sites in South India is the incorporation of both wild and domesticated fauna, for both subsistence and ceremonial strategies. The presence of cattle assemblages, inclusive of buffalo remains, in social consumption contexts and as a potential means of large-scale modification of landscapes, hints at the growing significance of bovine domestication strategies throughout South Indian prehistory.

The current ideas presented in section 2.2 and 2.2.1. detail key themes inherent in the transformations of the South Indian landscape. An acknowledged limitation facing many of the projects and findings, discussed on pp 44-49, is the relative paucity of radiocarbon dates to hinge interpretations regarding the pace of transformation and micro-interactions of archaeological landscapes in South India. Further attempts are being made to analyse over a quarter of a million sherds of Polished Black Ware, Polished Red Ware and Black and Red Ware, recovered throughout the course of the (LP/EHLTC) project, to refine existing chronologies and to assess ceramic use and meaning (Sinopoli et al. 2008). Four radiocarbon dates obtained from burial deposits at Maski, give a range of dates between 1895-1117 cal BC are some of the first to give clear temporal indications of certain burial traditions in this region (Bauer and Johansen 2015, 800). The resulting dates demonstrate the longevity of material assemblages inherent in the South Indian landscape, along with the utility of obtaining appropriate sampling material to establish radiocarbon sequences beyond assigning cultural periods.

This section has demonstrated key elements inherent in the landscapes of South India and how they relate to land use patterns and social activities within the Prehistoric - Historic transitions of Karnataka, South India. The archaeological features represent spatially bounded elements, linked by interpretations of agro-pastoral land use and wider landscape manipulation. Rock art as a cultural phenomenon is a much more diffuse means of archaeological material culture than the spatially bounded settlements, ashmounds and megaliths which have been explored in this section. They are widely scattered across the landscape,

inferring movement of the prehistoric communities who constructed, maintained and negotiated behaviours with other spatially bounded archaeological features, their range incorporating other peripheral material assemblages. The next section focuses on global examples of rock art research which have incorporated an explicit focus on collecting information about landscapes during rock art research projects. Section 2.3 is then followed by a critique of how wider notions of landscape have informed interpretations about the wider meaning and significance of rock art in specific locations.

2.3. Landscape methods in rock art research

Landscape approaches remain integrally important to rock art investigations focusing on “prehistoric” motifs in the absence of the explanatory human voice. The methods adapted from landscape archaeology used to investigate rock art are dealt with first and are integral to any documentation of rock art visual content and the embedded setting of motifs, from multiple scales. The second half of this chapter examines interpretative models taken from post-processual archaeology that are used to suggest wider meanings about the significance of rock art in differing landscape contexts.

Rock art is understood as an in-situ product of human interaction on grounded physical surfaces that has remained consistent through time and space (Chippendale and Nash 2004). Therefore, it is assumed that utilising methods connected to landscape archaeology will yield fruitful connections between the motifs, panels and specific landscape placements. These connections can then be used to suggest the significance of rock art as a cultural practice through time. As a limiting factor, the assumption that rock art remains an in-situ product is mostly but not always accurate. Viking rune stones arguably constitute a form of rock art, but once confined within a museum they lose their placement context. Additionally, the position of a panel can change subsequent to motif production as a result of erosional and biological processes, along with the result of human action. It therefore remains beneficial to assess the reliability of in-situ panel placement during documentation procedures.

Landscape methods are integral to surveying areas containing rock art at an initial fieldwork and subsequent analysis level, but the means of doing so are

varied and often unstandardised. Survey projects can focus on a single rock shelter (Robinson and Ramadas 2004), smaller regional areas (Coles 2005, 2008; Larsson and Brostrom n.d.) or, in some cases, provide an overarching gloss to entire geographical areas extending for thousands of kilometres (Agrawal 2005; Chandramouli 2002, 2011). There are also multiple forms of terminology utilised in rock art research projects around the world to describe similar frameworks of scale, as Christopher Chippendale aptly puts:

“One does not know if a body of rock art which has ‘thirty sites’ actually involves more sites than another with ‘twenty’ sites, since the difference may be in the definition of a ‘site.’ A research convention which tends to ‘split’ groups into individual sites ends up enumerating many more sites than one which prefers to lump rocks and panels together in a single site” (Chippendale 2004, 103).

In the confusion over identifiable or explicitly stated sense of scale with rock art research projects it can be difficult to make sense of the myriad motifs or groups of designs present over variable areas in diverse landscapes. As with other forms of archaeological evidence (ceramics, bones and lithics have standardised units of classification) it is imperative to define specific units intended for a documentation of rock art in a landscape setting. Chippendale, in his survey of Mont Bego figures, defines four distinct levels of scale for documentation purposes. 1) The millimetre scale, to assess methods of technique and production for motifs. 2) The scale of the centimetre, identifying whole figures or motifs. 3) The metre scale is intended to look at the systematics of the panel surface bearing recorded motifs. 4) The kilometre scale indicates the place of the surface or panel in the broader landscape (Chippendale, 2004).

Similarly, other studies, discussed in Hyder (2004), look at differential scales of locational analysis in the study of rock art, focused on the site, the topographic environment and the region. See also Bahn (2010, 138) for a discussion of micro landscapes incorporating panel surfaces and their immediate vicinity. The need to be explicit about the different levels of rock art documentation, from production technique through to regional motif spreads, links to the historical archaeological shift in expanding scaled units of analysis for archaeological sites, discussed in section 2.1. pp 34-35. It is also useful to do surveys of where rock art is evidenced in relation to other archaeological and natural features (Bradley, 2000). Conducting systematic surveys of all

archaeological and natural features to record regional contextual information about a rock art site setting is also beneficial (Blinkhorn et al. 2010), along with measuring the spatial extents between rock art sites and different forms of archaeological landscape features (Hartley and Wolley Vawser 1998). Documenting rock art at various scales is an invaluable tool in the case of prehistoric rock art, despite the criticism that there is no certainty that specific landscape placements had specific meanings for the communities that produced rock art (Bednarik 2000). However, documentation at various scales enables researchers to record multiple strands of fragmentary evidence about representations produced in landscapes, as an alternative approach to informed methods. The differing scales and reasons for the documentation of rock art at Maski are explained in Chapter four, pp 122-125 of this thesis, with results of the documentation process described in Chapter five.

Archaeological analysis methods focused on the visualisation of landscapes at an off-site level also provide a way to connect rock art research to its setting. Studies into rock art have provided a lot of emphasis on iconographic identification, but advances in the accuracy of GPS technology and digital mapping procedures such as GIS (Geographic Information Systems), have enabled the spatial dimension of rock art locations to be visualised in a more complete form at a greater scale (Jennings et al. 2014; Robinson 2010), taking into account intervisibility between landscape features and rock art sites (Diaz-Andreu et al., 2017). Elevated mapping practices have been criticised as envisioning a distanced outsider perspective, where landscapes are rendered passive and alienated (Thomas 1993). For other critiques of mapping practices relating to colonial, indigenous and feminist discourse see Ford (1991), Gillings (2012), Hac guzeller (2012), Harley (1988), Korf (2009), Rennell (2012) and Wickstead (2009).

Mapping practices can be seen to address the largest element of scale within rock art research; however, it does not elucidate any particular information about inter- or intra-panel rock art landscape relationships. GIS methods still struggle to adequately represent a holistic way of perceiving the landscape or even a way to replicate the experience of being in the landscape (Cummings and Whittle, 2004, 22). However, with further advances in spatial analyses, pioneered

by augmented and virtual reality, a fully immersive landscape experience may in time be realised (Eve, 2012).

The methods described above have an objective dimension to them, measuring their situated landscape at a variety of different scales. Utilising informed methods, such as ethnography and ethnohistory, idiosyncratic meanings of specific motifs and their landscape connection can be convincingly elucidated (Taçon and Chippendale 1998). Oral histories connect paintings of hybrid serpents in Arnhem Land to the formulation of clan identities within Dreamtime landscapes (Taçon et al., 1996). Similarly, ethnohistorical accounts of petroglyphs in the Mojave desert of eastern California argue for specific rock art motifs connected to conceptually sacred or profane landscape sites, which are understood by the communities who produced them (Whitley, 1998).

These interpretations about rock art, utilising ethnographic accounts, lead more weight to understanding the structures operating within the society that produced them, or the segregations of knowledge along social lines, at the time the ethnographic accounts were constructed. Although these interpretations can offer meaningful insights into a certain element of rock art production, they also remain partial understandings fixed in time and place. It still remains difficult to access the many meanings that a corpus of motifs has and the reasons for their changes over time, beyond the structured account of how it relates to its cultural context at the time the relevant ethnographic record was created. Whilst ethnographic and ethnohistorical accounts of landscape have the potential to create rich symbolic narratives on the reasons for motif placement and wider motif meaning in situated landscapes, these detailed accounts are often not available for many research frameworks using archaeological methods.

2.4. Landscape frameworks for finding 'meaning' in rock art.

Sections 2.1-2.3 of this chapter have described the historic pathway for the inclusion of rock art as a viable form of material culture for inclusion in archaeological landscape frameworks, along with subsequent methods applicable to the research of rock art, both in its documentation and analysis. The longevity of rock art production as a global and widespread cultural tradition implies that it was a significant form of human expression through time, the

meaning of which seeks to be explained. This section provides an overview of some commonly utilised frameworks for finding meaning within globally and temporally disparate bodies of rock art, before clarifying a way of understanding the connections between rock art and landscape presented in this thesis.

2.4.1 Structuring the landscape

Elements of rock art are often interpreted as means of structuring human relationships with landscape where researchers focus on both the visual content of motifs *and* where motifs are produced. The overarching aim may be to identify comparative patterns in the iconography or visual forms of motifs over a defined area and assess presence or absence of motifs in different landscape settings, ultimately leading to interpretations about why certain motifs are located in specific locational contexts (Conkey 2001; Whitley 2011, 174–176).

Firstly, one of the applications for recognising and finding similarities with repeated motif forms in globally disparate locations is as a means of finding broadly common traits of human experience. This is exemplified with a comparative study of ship motifs from prehistoric Scandinavia and south east Asia, namely Melanesia (Ballard et al. 2003). Utilising visual similarities of ship motif forms between the two globally (both temporally and spatially) disparate regions, along with an ethnohistorical record for the ritualised importance of ships in Melanesian society, suggestions were made about the cross-comparative symbolic significance of ship motifs for vast swathes of the world (Ballard et al. 2003). The location of rock art sites and their spatial proximity to water across the globe is also argued to be part of a widespread system of symbolic cosmology applicable in Palaeolithic European cave paintings, prehistoric Scandinavia, regional parts of Northern Arnhem Land and Early Period China (Bahn 2010; Bradley et al. 2002; Qian 2013; Sognnes 2002; Taçon et al. 1996). Secondly, there is also a means to identify and interpret the patterns of rock art production in a localised setting, to produce understandings of thematic motif production specific to a cultural context. This is evident in cases of rock art which are argued to demonstrate the divisions between secular or sacred motifs and their respective locations, or combining visual physical landscape elements with

“unseen” spiritual realities (Arsenault 2004; Layton 1992; Lewis-Williams 2012, 2013)

In his expansive work *Australian Rock Art, a new synthesis*, Robert Layton draws together a wide range of rock art traditions and sites across Australia, utilising Aboriginal knowledge to explore the complex information rock art sites display in terms of location choice, production events, subsequent interaction and reasoning behind repeated motif forms or stylistic choices. He argues that rock art associated with sites understood as “secular” act as a record of hunting and foraging activities, with motifs representative of plants and animals belonging to a specific district (Layton, 1992, 75). The location choices of these secular rock painting production sites are also not considered to be a priority variable, as they are not representative of a focal point for clan estates in the same way as Dreaming or ancestral sites (Layton, 1992, 77). Sacred rock art sites connected with spiritual beings or Dreaming narratives in Aboriginal Australia have been extensively researched and are not discussed further, but see Lewis and Rose (1988), Morphy (1998), Morwood (2002), Ross and Davidson (2006), Taçon et al. (1996) and Taçon and Ouzman (2004) for more detail.

There are additional case studies utilising ethnographic and ethnohistoric resources from North America demonstrating how interpretations of rock art differ between cultural understandings of secular and sacred landscapes. The repeated production of rock art in forested locations, attributed to Algonkian communities in Canada, is interpreted as merging physical geography with sacred “mental” spaces (Arsenault, 2004). The rock art at Writing-on-Stone in Northern Canada is contained within landscapes understood to be part of a sphere of vision questing and intensifying medicinal power, resplendent with unusual landscape features and acoustic properties (Klassen 1998, 69). In South African rock art research one way of finding meaning of rock art is geared towards its mechanism in altered states of consciousness, as a means of accessing inner worlds beyond immediately perceived realities (Lewis-Williams, 2013, 2012; Lewis-Williams and Dowson 1990; Solomon, 2008; Taçon and Ouzman, 2004). In fact, within San understandings of rock art sites, it is not just broad physical landscape features that are significant to rock art production sites (rivers, mountains, forests); it is also the nature of the rock surface itself, as a permeable

membrane between ordinary and extra-ordinary experience (Lewis-Williams and Dowson 1990; Taçon and Ouzman, 2004, 51).

Arguments concerning the implied meaning and significance of situated rock art are more realistically articulated when critically applying appropriate ethnographic or ethnohistorical accounts of a region in question; see Canadian and South African examples in the preceding paragraph. The approach of utilising rock art and its situated placement to provide meaning to possible symbolic systems is also present in research into prehistoric societies. For example, the regular appearance and spatial inter-relationship of ship and sun motifs in Scandinavian rock art, is argued to be representative of articulating a Bronze Age cosmology concerned with light/day (sun) and dark/night (ship), substantiated with similarly patterned material assemblages (Bradley 2006). Similarly, spatial proximity between ship motifs, footprints, water and burial monuments have been argued to demonstrate the significance of certain motifs with death and transcendence (Bradley 1997; Goldhahn 2013; Wahlgren 1998). This structural approach, rooted in religious narrative, although by no means the only interpretative framework, is especially favoured in northern and western Europe rock art research. It will not be discussed in further detail, but see Diaz-Andreu (2002), Goldhahn (1999), Goldhahn et al. (2010) and Goldhahn and Fuglestedt (2012) for extensive examples regarding the structuring principles of rock art in Iberia and Scandinavia.

In addition to the production and placement of rock art for navigating oppositional notions of secular and sacred spaces, the production of rock art in a situated landscape can also serve as one mechanism for structuring, reinforcing and negotiating aspects of personhood, such as gender (Goldhahn and Fuglestedt 2012; Hays-Gilpin 2004). Ethnohistoric evidence of female based initiation rites, identified in Namibia, is associated with antelope grazing areas and female-attributed “kudu” rock art motifs (Kinahan 2017). In some rock art shelters at Wardaman sites in Central Australia a man may say that he was meant to cover his eyes and not look at the paintings there, whilst another remote outcrop might be exclusively accessible to men for rock art production (Flood 2004, 194). Finally, Whitley argues that some spiritual Great Plains sites with rock art are reflections of gender inversions, representative of a gender-specific overlap and interaction, rather than a segregation of male vs female ritual spaces

(Whitley 1998). These examples demonstrate that a certain level of engendered ownership, controlling specific landscape spaces and choices of motif form for production events, can be attributed to accumulations of rock art. However, there is also an understanding that there is a danger of creating false dichotomies about the role and wider meaning of rock art within a given society.

Section 2.4.1 has so far addressed how rock art has been used as a means of structuring significant cultural concerns within a given society. Rock art, especially in north west Europe, has also been studied in a more explicit structuralist way, taking the form of rock art as a code to be deciphered and find out the underlying meaning for certain motif choices in certain landscape settings. The repetition of the elk motif at Namforsen, northern Sweden, has been analysed due to its anatomical variation in motif form; “elks with straight legs have been subject to a kind of metamorphoses which can be argued chronologically” (Sjostrand 2010, 148). The spatial and numerical variations between elks with straight or bent legs have been highlighted as a significant code with which to understand societal changes in northern Sweden, from hunting and gathering to more sedentary lifestyles (Sjostrand 2010).

Again using the rock art at Namforsen, in *Material Culture and Text: the art of ambiguity*, Christopher Tilley analyses these petroglyphs as a textual metaphor, arguing for a linguistically deciphered understanding of specific motifs, as one does the structure of the sentence to further an argument for Bronze Age power structures and gender divisions (Tilley 1991). This work has been criticised, partly due to the questionable applicability of ethnographic analogy and the misrepresentation of images as text (Janik 1999).

The examples described in this section demonstrate how the placement of rock art as a deliberate choice of human interaction, with physical and extraordinarily understood landscape features, both visualise and (re)constitute structuring principles within specific cultural systems. However, rock art at an observable distance does not provide clear-cut and consciously loaded messages about how it should be received or understood. At an archaeological (or formal) level, an interpretation of spatial relationships between common motif forms and landscape placement result in dichotomies of understanding such as male vs female, light vs dark, secular vs sacred, obscuring the complexities of human interaction with their lived surroundings through time (Tacon 2002, 123-

124). A rigid understanding of rock art production and viewing as an inflexible, structuring principle negates the ability of human populations to interact with their lived landscapes in different and transformative ways, arguably through the (re)production, (re)encounter and repeated understanding of visual images onto stone in specific landscape settings.

2.4.2 Subjectivity in the landscape

Phenomenological approaches to landscape have already been introduced and critiqued in section 2.1, pp 37-39. It remains an influential framework with which to investigate rock art, both in method and for subsequent interpretations, about the meaning of motifs in connection to its landscape placement. George Nash in his research into rock art in Norway moves beyond an empiricist descriptive account of documenting and describing motifs, to argue for a close connection to the placement of rock art on intermediate slopes in physically and visibly restrictive locations away from both coastal and upland locations (Nash 2000).

Alternatively, phenomenological understandings of some rock art assemblages go beyond the perceived significance of visibility and access points as markers for finding meaning in motifs, to include other experiential qualities. These factors range from different seasonal or daily environmental qualities experienced when visiting rock art sites, along with an awareness of additional sensory qualities encountered at a rock art site, such as acoustic or textural variations (Diaz-Andreu et al. 2017). Ljunge uses phenomenological observations in repeated visits to the rock art sites of Karlsberget south east Sweden (Ljunge 2010). Ljunge argues that by acknowledging the intermittent association of rock art motifs with running water and shining quartz in an elevated location, at a junction between rapids, agricultural land and the open sea that this rock art site was a transit zone between different spheres of Bronze Age activity, integral to making and connecting places (Ljunge 2010, 98).

Interpretations regarding the significance of rock art in its situated landscape are argued to place an over-reliance on sight at the cost of other senses, such as hearing and touch, as integral for a more complete understanding of why rock art is located in certain sites (Boivin 2004b; Boivin et

al. 2007a; Ouzman 2001; Rainbird 2002). Spatial connections between rock gongs (naturally occurring boulders that are angled in such a way as to produce a range of musical notes) and the presence of rock art has been noted at various locations in Africa, for example in Namibia (Ouzman 2001). Paul Rainbird documented a large number of petroglyphs in Pohnpaid, Micronesia, utilising ethnohistorical accounts and his own experience to argue that specific petroglyphs would have been created with specific rhythmic pounding (Rainbird 2002). Differential rhythmic poundings would have been understood by the communities present, who would have self-identified with differential forms of rhythms and conceptually linked sound with specific motifs (Rainbird 2002). Additionally, interpretations concerning petroglyphs in Sanganakallu, South India have argued that the pecking of motifs, combined with resonant notes of other sonorous rocks formed an integral part of a ritualised soundscape for this specific area in prehistory (Boivin, 2004a). The author explores interpretive frameworks at Sanganakallu more specifically in Chapter three, sections 3.2 and 3.3.3, discussing the rock art of South India.

“One tends to ignore (and forget) that our own experiences when visiting sites are just as valid as an archaeological report or narrative text. Experiences differ when i) the site has been repeatedly visited by the same person, ii) the site is experienced under different climatic conditions which determine light, temperature and what can be seen or iii) sites are interpreted in different ways by different people” (Nash 2000, 1).

Repeated visits to a site in differing weather conditions by different people elucidate varied hypothetical reasons regarding motif form and placement, but there may also be very little agreement to form plausible interpretations that stand up to scrutiny. This results in rock art research publications containing anecdotal phrases such as “we are provided with the traces of the spirit of earlier sojourners of the land or who rested long enough in the vicinity to make paintings and engravings on the rock” (Heyd 2000, 24). Or “we both felt completely at ease and happy inside the profusely decorated ‘bison sanctuary’ at the end of the main corridor, but that we both felt distinctly ill at ease in a different undecorated part of the cave, and were glad to leave it” (Bahn 2010, 138). Beckensall argues that whilst visibility was a major factor in much open-air rock art it is difficult to know if

decorated outcrops have the views witnessed by the modern researcher or were obscured by forms of vegetation (Beckensall 2009).

If this situation is looked at in reverse it is difficult to know if petroglyphs on a panel were covered by vegetation for periods of time after their production, and, if so, would this have changed the variables of interaction with petroglyphs (and other forms of rock art) post-production and altered its meaning through time? A subjective element of perception with regards to rock art is an inescapable part of initial site encounter and motif identification (see Chapter four, p133 with regards to the author's experience during fieldwork). However, interpretations relying too openly on a researcher's own personal experience, utilising phenomenological principles, are open to criticisms of suitability as an erroneous substitute for appropriate ethnographic insight.

2.4.3 Socialising the landscape

This final section explores how rock art is interpreted within a social context, by examining some of the historical literature which has interpreted accumulations of rock art through a social lens. It examines how rock art can be understood as a means of communication and, more specifically, it explains what is meant by the understanding that rock art can be produced as a process of socialising the landscape.

The presence of rock art accumulations is often understood as part of the process of human populations marking and making sense of landscapes (Chadwick and Gibson 2013; David and Wilson 2002; Diaz-Andreu 2002; Jones 2011; O'Connor et al. 2013). The edited volume *Inscribed Landscapes* demonstrates the multitude of ways that globally diverse human groups have actively formulated, negotiated and manipulated materials in the creation of specific places in the landscape. This volume supports the multitude of ways in which understandings of landscapes are both "out there" in the objectively measurable world and combined with intangible landscape realities, which together form a process of continual engagement between people and place. (Bradley 1997; Wilson and David 2002).

Whilst purely archaeological research into rock art and the situated landscape cannot directly inform us about a culture or a group, it can provide clues as to the contexts that these cultures or groups were operating in or experiencing (Conkey 1990, 15; David and Lourandos 1998; Tacon and Chippendale 1998). It is through exploring the remaining evidence of the past actions of those who produce rock art motifs that their relevance within a cultural context can be suggested. Therefore, rock art as a practice can be understood as a means of communication, the choice of location and placement of notable motifs can allude to its existence as a means of transmitting information, which are embedded in landscape settings (Domingo et al. 2016). However, the content of that information, the situations in which it is produced, who it is directed towards and how this information is received can remain contradictory and complex to unravel.

It is plausible to accept the act of producing rock art is a prominent means of physically altering the landscape, one mechanism utilised by human groups in the creation of culturally meaningful places. It is the active nature of individuals purposefully engaging in the continued production of rock art, that "space is expanded from an abstract entity to be formulated into meaningful places (Casey, 2008, 45)." This engagement can be very conscious as a way of laying claims to and formulating ideas about a place in the world, or it can be unconscious as part of the routine of everyday experience (Bender 1993, 2). Nevertheless, the process of rock art production can be seen as a sequence of intentional actions, resulting in representations of information being transmitted differentially through society.

Whilst rock art can be understood as a process of communicating information, more specific aspects of what rock art communicates, and to whom, are also interesting facets of how rock art generates meaning within cultural contexts, both current and archaeological. What rock art communicates and who it communicates to are key mechanisms in its role of making landscapes familiar to human groups who live within them, thereby "socialising the landscape" (David and Wilson 2002, Tacon 1994). Socialising the landscape is understood in this thesis as a means of attributing collective group meaning and inclusion to marks made repeatedly over a landscape surface (Tacon 1994, 117), thereby making

their landscapes familiar, and continuing to negotiate the nature of that familiarity through time.

At the heart of the complexity in understanding rock art as a process of socialising the landscape is that once images are produced and “fixed” in place, they are able to be interacted with through time by multitudes of different people. This implies that even after the “original” meanings of an inscription are forgotten the mark is fixed on the landscape and participates in people’s constructions of their worlds (Wilson and David 2002, 6). What rock art communicates through a social lens varies and overlaps within the same cultural context, ensuring that rock art will have many and overlapping meanings from an individual, family or wider group context (Domingo et al. 2016). Key themes for interpreting the significance of rock art as a means of communication, such as the negotiation of territory, the inclusion of a rock art audience and how it formulates social identities are discussed below.

Interpretations concerning the extent or spread of a cultural group over a physical landscape is a common theme in debating why common motif groupings are found in specific areas. Rock paintings in Arnhem Land are said to consist of distinctive Mimi, Quinkan or Bradshaw motifs (Brandl 1973; Carroll 1977; Lewis 1997), depending on the preferred choice of name for the same motif grouping. Wandjina motifs are located in Queensland (Crawford 1968), whilst geometric petroglyphs are most frequently recorded in central Australia (Franklin 2011; Munn 1973). Each motif form in their desired locations are argued to represent marking the landscape with a defined set of ideas in mind, understood by those who inhabit, or have knowledge of, certain landscape zones. Rock art is then understood as a communicative practice of claiming territory or renegotiating territorial understandings on the landscape, as a response to various forces, either external or internal (Smith 1992; Taçon 2008; Watchman and David 1991).

The examples of motif groupings in Australia mentioned above are all understood as forming part of an unbroken tradition of placing visual motif forms in landscape settings, using similar techniques which cluster over specific distances and communicate coherent social ideas. Within broad regional similarities of appearance and placement there are well documented instances of rock art that do not fit conventional regional models and instead incorporate eclectic combinations of accepted regional styles. These have been called the

“junctions” of rock art, forming as a transitional ground between visually homogenous provinces of rock art accumulations, arguably representative of contact periods between different cultural groups (Taçon, 2013).

However, in addition to the idea of rock art asserting notions of territory against like cultural groups, accumulations of rock art motifs can also be understood to communicate drastic social changes occurring within cultural groups through time. In the continents of Australia and south America the form, technique and setting of the visual presentation of common rock art motifs changed due to external cultural contact and repressive colonisation (Frederick 1999; O'Connor et al. 2013; Recalde and Navarro 2015). In the Kimberley region of Australia the materials and form used for producing Wandjina motifs changed from polychrome painted anthropomorphs with headdresses to dry scratched, charcoal or incised ephemeral figures, a change in graphic system reflective of a change of land use by Aboriginal communities due to restricted resource access imposed upon them by colonial structures (Frederick 1999, 141).

Additionally in 16th and 17th century Argentina, the production of rock art is argued to have been used as a form of expression to calm social tensions and enhance inter-cultural social integration, as a rebellious response to colonial infringement in indigenous landscapes (Recalde and Navarro 2015). The continued use of historic rock art sites after Spanish conquest, with the absorption of horse and Spanish anthropomorphic designs into the same locations, using the same design schemes as existing camelid and anthropomorphic motifs, demonstrates how indigenous populations negotiated dramatic external changes to their lived experiences (Recalde and Navarro 2015, 58).

The social understandings of rock art placement within the landscape, as a means of asserting and negotiating aspects of territory in response to external or internal variables, do bear conceptual similarities with New Archaeology hypotheses of modelling human behaviour based upon external variables (discussed in section 2.1, p34). Understanding regional spreads of rock art homogeneity is a good grounding point for relatively understudied areas of the globe, this is looked at in more detail with regards to the history of rock art research in the Indian subcontinent, Chapter three, pp 92-103. However, asserting stylistic landscape boundaries based upon common visual forms in rock art accumulations also implies a homogenous understanding about a cultural

group in question, a homogeneity in social conditions, concepts and relationships to lived landscapes. Understood as the process of inscribing landscapes as territorial ownership, rock art becomes a static image to be placed on a physical object. It then becomes difficult to adequately explain differential choices in motif form or obscure landscape placements that do not fit general patterns recorded by the researcher.

The historical concern of rock art researchers to either find the underlying code in a corpus of motifs, or gain a perceptual understanding about the wider meaning through subjective, highly personalised experience (see sections 2.4.1 and 2.4.2 -pp 54-61), has meant that additional aspects associated with rock art landscape placement and subsequent panel interaction through time has gone relatively unnoticed. André Rosenfeld conducted an archaeological study of rock art motifs in central Australia and argued that, whilst there are broad regional traits recognisable to indigenous groups, there are also more localised, idiosyncratic variations within motifs in landscape locations with multiple meanings applied to the same motif and choice of placement (Rosenfeld 2002). Whilst sites containing rock art may be powerfully mythological places articulating conceptual geographies, places with rock art are also camping and casual shelters, implying that two conceptions about the same site could be overlapping (Rosenfeld 2002, 76). Additionally, specific rock shelters displaying more recent motifs were argued to be pertinent in recasting the meaning of older motifs (Rosenfeld 2002, 76).

In addition to arguments that the choice of specific locations for rock art placement and the content of motifs are significant for elucidating meaning about the communicative significance of rock art, the role of the rock itself is also argued to be more than just an available panel surface (Aas 2017; Lewis-Williams and Dowson 1990). The rock surface within the context of San rock art production is understood as a permeable membrane between the "real world" and the "spirit" world (Lewis-Williams and Dowson 1990). Rock shelter walls and associated irregularities in the rock then become available as access points to enter and leave supernatural states, with the production of rock art creating a "painted veil," suspended in a liminal space (Lewis-William and Dowson 1990).

In a similar vein, specific boulders and rock surface irregularities are argued to assist in the creation of special places within rock art concentrations in

Ladakh, as a means of communicating with hunting spirits (Aas 2017). Although these examples utilise ethnographic principles in arriving at understandings for the spiritual significance of the rock in rock art production, the availability of rock for rock art production has other social implications. Using rock as an available resource is not just taken as a passive geological availability, but this very availability is argued to become important in creating special sites for communities to communicate wide reaching social information (Conkey 1980, McDonald and Veth 2012, 90). Therefore, understandings of the available surface geology for rock art production, in specific contexts, can be extended beyond functional surface availability to examine how rock availability is significant for producing important social places.

The meaning in rock art is therefore not just about identifying regional spreads of motif forms, but as a form of past human activity given to communicating ideas about social cohesion from one cultural group to another. It is also about teasing apart the complex processes of rock art accumulation and concentration in landscapes, combined with other evidence of human activity (Coles 2002; Fredell et al. 2010; Nilsson 2010; Taçon 1999). The majority of rock art sites in southern Scandinavia are dated to the Bronze Age, yet there is comprehensive evidence of continued Iron Age interaction with specific rock art sites at Himmelstalund, southern Sweden, constituting a long standing dialogue with the past (Nilsson 2010).

Superimposition and stylistic analyses of rock art in spatially contiguous settings are mainly utilised to create relative rock art chronologies through indications of stylistic changes (discussed in more detail in Chapter three, pp 92-97). However, superimposition sequencing and associated changes in visually similar motif forms can be understood as a means of implying previous conscious engagement by individuals with their material world, interpreted and interacted with in numerous different ways after the initial marks are created (Bradley 2009; David and Wilson 2002; Domingo Sanz et al. 2008; Taçon 2002). The superimposition of motifs especially as a purposeful choice of motif emplacement, signifies that rock art sites are not single use locations, but are repeatedly visited places incorporated into overlapping social spheres of identity construction, knowledge production and other quotidian activities (Bradley et al. 2002; Domingo Sanz 2008; Tacon et al. 2008). These experiences and

subsequent relationships formulated in the process of rock art production in past or contemporary settings will not be the same for those involved in it as a process, dependent on variables such as producer, audience, accessibility and the variable identifying roles played by people in society through time (Bradley 2009).

2.5. Conclusion

This chapter has provided an overview of how landscape has been historically understood in archaeology, allowing for the inclusion of rock art as a form of archaeological evidence with an objectively measurable quantity in a multitude of landscape settings. The crux of this chapter is to provide a landscape framework to understand the rock art documented and analysed within the context of this thesis, aiming to assess how a study of rock art in a specific area of South India can contribute to archaeological knowledge.

This chapter has demonstrated that interpretations about rock art, both with and without ethnographic insight, is understood as a significant practice within a cultural group, mutually shaping a local landscape and themselves, by how they relate to it through time. The examples of rock art presented in this chapter demonstrate that the same body of rock art, both as an accumulative corpus and down to a single motif type, take on different meanings within the same community, representative of an agglomeration of diverse identities and continually transformative relationships with one another and their lived environments. In relating this argument to the rock art at Maski, this chapter has demonstrated that a study of rock art at Maski has the potential to provide nuanced suggestions about its role as a significant and long-standing landscape practice, whilst connecting it to archaeological knowledge of the region. This understanding opens avenues for incorporating the production of rock art at Maski as a complex communicative media understood at different levels by diverse groups of people who encounter and interact with it, the meaning of which is multi-valent and will have changed through time.

The next chapter moves on to examine current research trends in the rock art within the Indian subcontinent. It also looks at how rock art in the Indian subcontinent is currently understood and introduces the avenues of research presented in this thesis that will add to existing knowledge of petroglyphs in South India.

Chapter Three. Current understandings of rock art in the Indian subcontinent

Chapter three forms the second background chapter relevant to this thesis assessing what a study of rock art can add to archaeological knowledge of prehistoric South India. The previous chapter formed a framework for assessing landscape within Indian archaeological research, opening an avenue for the incorporation of rock art as an archaeologically complementary form of material assemblage. This chapter examines current understandings of rock art in the Indian subcontinent. Section 3.1 introduces the historical development of rock art studies and knowledge of rock art concentrations in India. Section 3.2 examines how specific accumulations of rock art in Karnataka and Andhra Pradesh have been documented, categorised and analysed. This section also presents broadly accepted interpretative arguments used to create meaning and significance for a selection of rock art accumulations in the South Indian states of Karnataka and Andhra Pradesh.

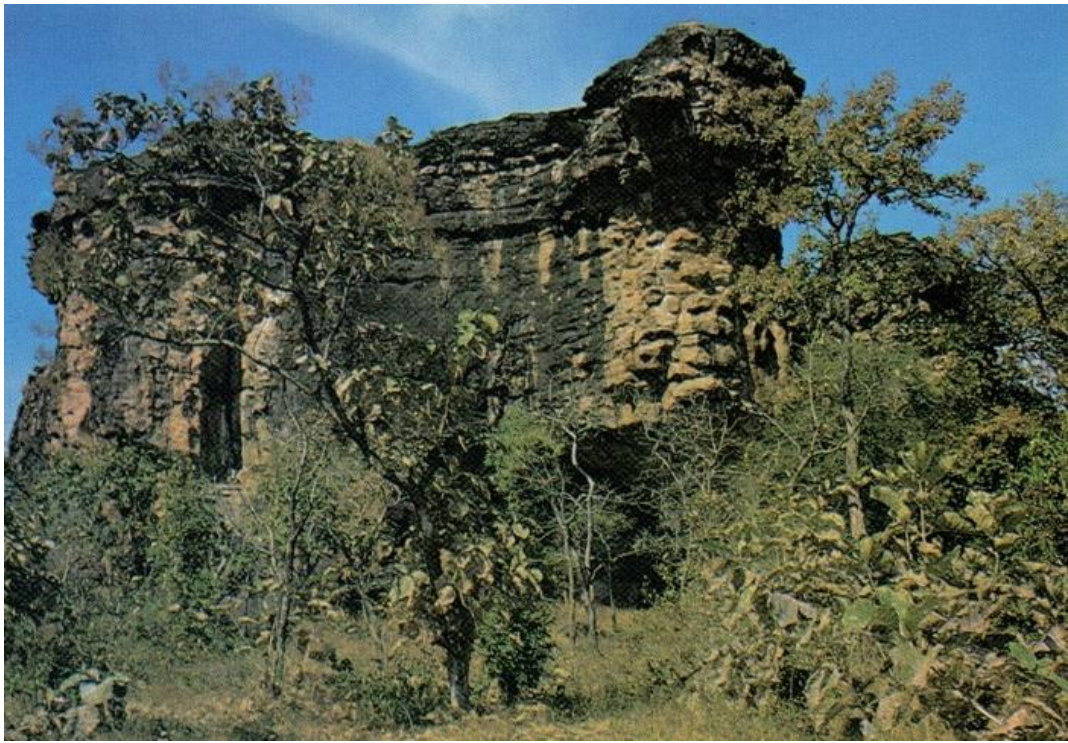
The means of chronologically ordering rock art in the Indian subcontinent through stylistic means is assessed in section 3.3. This is achieved through a critique of the differing academic understandings of style, followed by an examination of how style has been historically used to sequence rock art in an Indian context. Section 3.3 concludes with an explication of how “style” is used within this thesis as an ordering mechanism for the petroglyphic bruising of Maski, further examined in Chapter Seven. Taken together, Chapter Two and Chapter Three demonstrate how the rock art of a local region in Karnataka can be incorporated into current knowledge about the Prehistoric and Early Historic landscapes of South India through a thorough procedure of detailed documentation and multi-scalar analysis, presented in Chapter four through to Chapter seven.

3.1. Rock art studies in India

Observations of rock art motifs in India occur from the mid nineteenth century, petroglyphs reported by Henwood in 1856 and pictographs by Carlylle in 1867 and 1868 (Blinkhorn et al. 2012, 180; Neumayer 1993, 8). As a form of past human landscape interaction their recording is chronologically connected to the

development of archaeology as a discipline within the subcontinent, and observational documentation went hand in hand with the colonial interest in the Indian Past. (Robinson in press, 3).

After Indian independence, visual thematic and chronological knowledge has largely focused on the rock art region of Bhimbetka in the Vindhyan Range, located 45 km southeast of Bhopal in Madhya Pradesh and discovered by V.S Wakankar in 1957 (Brooks and Wakankar 1976; Chakravarty and Bednarik, 1997; Wakankar 1984). The extensive rock art site of Bhimbetka, a recognised UNESCO World Heritage site, covers an area of 20km² and consists of seven hills with over 500 painted sandstone rock shelters see fig 3.2, p70. The preservation of this site is largely due to the dense vegetation cover that has protected rock shelters containing rock paintings from the natural elements, as demonstrated in fig 3.1, p70 (Brooks and Wakankar 1976, 7; Clottes 2011).



Top Fig 3.1 Photograph of one rock shelter at Bhimbetka (Brooks and Wakankar 1976, 7, fig 4). Bottom Fig 3.2 An example of the paintings at Bhimbetka, in this instance red archers superimposed over white figures (Clottes 2011, accessed Feb 2014).

The diversity of motifs present at Bhimbetka are vast and serious considerations have been made as to their identification. Scenes depicting activities of human social life range from hunting with weapons or dancing in costume, through to honey collecting and chariot riding (Neumayer 1993). Alongside anthropomorphic representations are numerous animal images such as, but not limited to, bison, tiger, rhinoceros, wild boar, elephants, monkeys, antelopes, lizards and peacocks (Brooks and Wakankar 1976). There is also evidence of religious symbols and historic inscriptions (Allchin 1987; Brooks and Wakankar 1976). Much of the work involved at Bhimbetka focused on cementing relative chronologies of motifs and on motif identification.

In general, the three periods broadly recognised by most researchers relating to the creation of rock paintings at Bhimbetka are; Mesolithic (12000 BP – 5000 BP), Chalcolithic (5000 BP – 2500 BP) and Historic (2500 BP – onwards) (Brooks and Wakankar 1976; Wakankar 1984), with periods being demarcated due to the presence or absence of specific identifiable motif categories (see p94 for a phased division of motifs and time periods for Bhimbetka). V.S. Wakankar also argued that the earliest presence of green paint and dynamic 'S' shaped figures may represent an earlier Upper Palaeolithic sequence (Wakankar 1984, 50–51), although this is still debated. The concept of style is especially prominent within rock art research in the Indian subcontinent and is a pivotal element in this thesis; it is examined in more detail in section 3.3, pp 92-103.

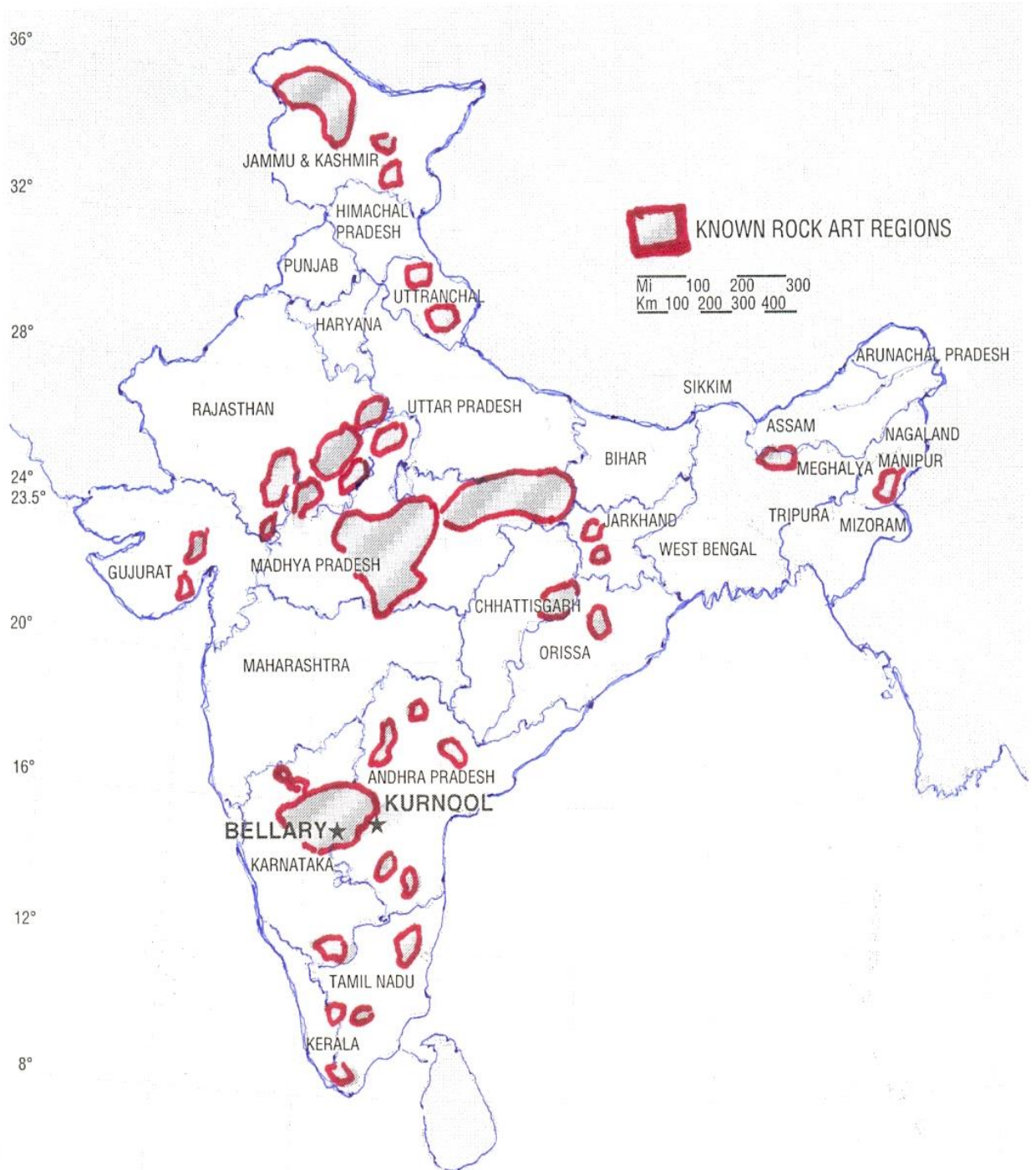
The site of Bhimbetka is a visually spectacular example of rock art creation with potentially Palaeolithic origins and constitutes a form of visual material culture with modern day connections. Accounts of modern rock art production have been connected to regular dance performances in central India (Malaiya 1989). The spatial association of human activities within the rock art site of Bhimbetka highlights the temporal depth of visual expression present in India. Additionally, spatially associated material assemblages within rock art sites suggests that rock art research can be incorporated into archaeological research frameworks, as the increasing time depth and complexity of Indian prehistory continues to be realised, see Bednarik (1994, 2013), Chakrabarti (2009), Korisettar (2002), Kumar (1996), Kumar et al. (2006), Pappu et al. (2003) and Petraglia et al. (2003) for more details regarding understandings about the Indian Palaeolithic.

A widespread reflection of rock art studies has emphasised the global importance of rock art in India, on par with Australia and South Africa in terms of chronological sequencing and diversity of visual form (Chandramouli 2002). An overview of rock art regions within India is found in section 3.2, pp 74-90 of this thesis. More recently, reflections on the trajectory of rock art studies in India, documentation methods and analysis priorities and interpretations have been widely covered by a number of scholars, see Bednarik (2002), Blinkhorn et al. (2012), Chakravarty and Bednarik (1997), Malla (2014) and Sanawane (2008) for more detail. Rock art researchers operating in India played a pivotal role in the major Australian Rock Art Association (AURA) congress, held in Darwin, Australia in 1988, culminating in the formation of the International Federation of Rock Art Organisations (IFRAO) (Lorblanchet 1992). On a national level, following the AURA congress, leading rock art scholars within India founded both the Indian Rock Art Research Association (IRA) and the Rock Art Society of India (RASI) (Bednarik 2002; Malla 2014). These associations ensured a platform of accessible rock art information to be shared amongst members, further enhanced by the regular publication of *Purakala*, a journal disseminating rock art findings in India to the rest of the world.

Rock art research as a discipline in India has benefitted from these institutional frameworks, encouraging the collective sharing of new rock art data, and the development of rock art interpretations around the subcontinent, see map 3.1, p74 for a geographical distribution of rock art regions in India. More recently, the Indira Ghandi National Centre for the Arts (IGNCA) has developed a long-standing public exhibition series entitled '*The World of Rock Art*,' with an accompanying two volume publication providing recording and interpretation overviews of rock art within the Indian subcontinent (Malla 2014). This builds on the growing regional knowledge of motif catalogues in numerous places within the Indian subcontinent such as Ladakh (Francfort et al. 1992), the Kumaon Himalaya (Agrawal and Joshi 1978) and Kerala (Kumar 2014).

Both RASI and IGNCA are amongst the institutions who currently support interpretations of rock art geared towards the use of ethnographic analogy to understand the wider meanings of motif production within the Indian subcontinent (Malla 2012). This approach may be connected to modern observations of "art" motif production that share visual parallels with pre-existing rock art motifs

(Pradhan, 2012). Subsequent interpretations hinging on ethnographic analogy have led to interpreting motifs and their production as relating to altered states of consciousness and the universal cognition of signs (Ahmed 2006; Chakravarty 2009; Ghosh 2007; Malla 2012). While the use of ethnographic analogy has provided some intriguing arguments as to the significance of certain motifs and production contexts, as an analysis tool it needs to be critically assessed before being applied to all forms of rock art research in India. Methods of rock art research within the Indian subcontinent that follow archaeological principles of objective data gathering, spatial analyses and archaeologically relevant interpretation can still provide fruitful arguments regarding the widespread production of rock art motifs. Section 3.2 describes the current state of knowledge about a selection of rock art regions in India, with a focus on the states of Karnataka and Andhra Pradesh in South India due to the geographical proximity, visual and technical similarities to the rock art content presented in this thesis.



Map 3.1 Distribution map of major rock art regions (Korisettar 2014. 13, fig 19).

3.2 Categorising rock art in South India.

Certain documentation projects in rock art research have prioritised rock art sites similar to the contexts of Bhimbetka and are centred in Central India (see site numbers and percentages in table 3.1, p76 accurate as of 2014). The current trend when discussing the plethora of rock art sites in India is to divide rock art regions into contemporary states as the most visually accessible choice when mapping rock art areas, displaying absolute counts of known sites and how that relates as a percentage across India. This is evident in publications by Ahmed (2006), Biswas (2012), Pandey (1993) and Rajan (2008) and demonstrated in table 3.1 p76. The four peninsular states consisting of Kerala, Karnataka, Tamil Nadu and Andhra Pradesh (the data for Andhra Pradesh in table 3.1, p76 also includes the now separate state of Telanagana) contain a low proportion of documented, internationally recognised rock art sites when compared to northern and central regions in India. It has been argued that the rock art of Tamil Nadu still remains an academic mystery with regards to international rock art research (Chandramouli 2002, 180). Rock art in South India is incredibly diverse and cannot be amalgamated into a singular analysis, since it differs visually at a regional level and is associated with heterogeneous ecological and geological landscapes (Chandramouli 2011, 29).

Table 3.1 Proportional presentation of rock art sites divided into states correct as of 2014. (Source: Korisettar 2014, 7, table 1).

Rock art Sites	Numbers of sites	Percentage of total
Central India/Madhya Pradesh	295	46%
Uttar Pradesh	158	25%
Rajasthan	38	5%
Jammu and Kashmir, Himachal Pradesh	32	5%
Andhra Pradesh	12	2%
Tamil Nadu	21	3%
Karnataka	43	7%
Kerala	7	1%
Bihar	16	2.5%
Odisha	16	2.5%
Total	638	99%

The numerical data presented in table 3.1 above represents an absolute count of academically known rock art sites up to 2014. The numbers of rock art sites known currently will have no doubt increased from this date, along with a shift in the relative percentages of rock art sites across India. The values given in table 3.1 form an accumulative view of just how many sites there are which contain varying degrees of rock art information as documented by specific research projects. However, it does not assess the significance of each site in understanding how rock art relates to past human landscape practices. It is unlikely that all rock art sites represented in this table will be understood as carrying equal significance or value, both in terms of where they are situated in the landscape, and in terms of the motifs they do or do not contain.

Even if many sites and, by extension, thousands of similarly categorised motifs are recorded across a defined landscape, the argument that their repeated presence is an indication of significance within a specified culture is less than certain. A figure known as a Mantis, trickster, or /Kaggen is not directly portrayed as a motif in San rock art, yet its existence and interaction with San society is essential for understanding the San mythology, religion and societal structures (Hollman 2007; Lewis-Williams 1980, 1981, 1982). Additionally, there is the much

debated and occasional motif of the “mythic woman” which makes a rare appearance in South African rock art, yet this motif is considered integrally important to the wider understandings of San culture (Solomon 1998). There are also questions about the absence of plants in rock art depictions affiliated with hunter-gatherer lifestyles, despite the acceptance that plants are irreplaceable within hunter-gatherer societies (Ouzman et al 2017, 1-2). In the Himmelstalund region of Sweden, archaeological evidence suggests that groups of people were partially reliant on aquatic subsistence, yet there is no evidence of recognisable fish rock art motifs (Nilsson, 2010, 11).

These examples demonstrate that, in specific situations, assuming cultural significance based upon increased repetition of motif form at multiple sites is no guarantee of gaining meaningful interpretations about the importance of quantifiable rock art content for a given cultural group. However, in other cases around the world rock art research projects have documented a quantitative increase in sites which display repeated motif forms, such as The Eland in South Africa (Lewis-Williams 1981, 1982, 1987; Parkington 2003) and footprints in Scandinavia (Bertilsson 2013; Bradley 1997, 2006). These motifs are repeatedly documented across multiple sites in their designated regions and are also considered significant in disseminating meaning within their specific cultural contexts. Therefore, although demonstrating quantitative values of site numbers and repeated motifs does not imply absolute significance, it still remains important for assessing rock art production as a deliberate practice and to assess what is chosen to be depicted, combined with what is not depicted in a given context.

Despite uncertainties about the value or significance given to rock art sites by documenting repeated instances, there are other absences of information which become apparent when documenting rock art in the form of numerical data. The data presented in table 3.1 does not give a representative analysis of the spatial distribution of sites within states, nor the documented scale of what constitutes one of these rock art sites. Are the rock art sites represented in the table clustered together? Do they represent a single shelter or a dispersed accumulation of eroded geologies? Do they exhibit multiple motif production phases? These are just some of the most immediate questions that can be taken from this numerical spread of rock art sites throughout India.

There is also a distinct preference towards presenting numbers of rock art sites defined by linguistic states, therefore detaching rock art from its geological landscape setting. More recently, initial attempts have been made to provide a geographical model for rock art distribution sites based upon geomorphological divisions across the Indian subcontinent, aiming to reconnect rock art designs to the landscape in which they are situated (Korisettar 2014). By looking at differences in motif form and creation technique, this approach has formed geological divisions between the locations of “hunter-gatherer” and “agro-pastoral” rock art, attributed to the availability of differing resources and ways of acquiring them (Korisettar 2014). This method expands the way rock art can be understood within a geographical model, rather than the artificial distribution of rock art along modern state lines and attempts to connect the content of specific images with prehistoric ecologies. It is a model which has the potential to be developed further by examining the intricacies between hunter-gatherer/agro-pastoralist dichotomies of understanding in the prehistory of India.

Knowledge about the rock art of Andhra Pradesh is predominantly derived from the work of N. Chandramouli who has published extensively about the descriptive visual similarities that characterise regional rock art in Andhra Pradesh (Chandramouli 2002, 2011, 2013), along with more detailed contextual information about specific sites (Chandramouli 1987, 1995). Descriptive and chronological information for rock art sites are also available through results of the Kurnool District Archaeological Project which recorded a large number of rock art sites in the specific Kurnool region from 2003 (Blinkhorn et al. 2012, 191–193; Taçon et al. 2010). These rock art sites in the Kurnool district were documented during survey work conducted in the Jurreru, Katavani Kunta and Yaganti valleys, each with eight, 50 and five sites respectively, located in rock shelters created by the formation of huge quartzite boulders that have eroded down the valleys (Blinkhorn et al., 2012, 191; Korisettar, 2014).

Motifs produced as paintings and pictographs dominate the collection of rock art of Andhra Pradesh, exemplified by rock art sites in the Kurnool district, usually in different shades of red and white pigments and often located in shallow cave shelter complexes (Blinkhorn et al. 2012, 191). Red pigment imagery usually consists of animals both wild (deer/gazelle) and domesticated (cattle, goats), human figures (fig 3.3, p80) and geometric designs, while images in a white

pigment are dominated by handprints, geometric designs and tridents (possibly associated with the historic emergence of Hinduism in the region (Taçon et al. 2010). It is not clear from the published literature what the constituent materials of these coloured pigments are. Relative stylistic chronologies have categorised the rock art of Andhra Pradesh into Mesolithic, Neolithic, Megalithic, general prehistoric and Historic phases, coinciding with the relative phasing of archaeological research in the region (Chandramouli 2002, 175–178; Taçon et al. 2010). There is a general understanding that faunal motifs, identified as wild animals are indicative of Mesolithic, or hunter-gatherer sequences (up to 5000 BP), whilst faunal motifs representing domesticated species are indicative of agro-pastoral sequences (5000 BP onwards), a trend described in the geomorphological model of landscape art by Korisettar (2014), see pp 78 of this thesis. Whilst chronological ordering of rock art series into relative periods is to be treated with caution, it is often the most accessible means of sequencing complex visual imagery. The obstacles of chronologically dating rock art are discussed more fully in section 3.3, pp 96-97. However, a rare case of an absolute date of 5000 BP was obtained from layers of flowstone lying over a series of nested geometric diamond petroglyphs in the Billasurgam Cave complex, chronologically pinning it to Mesolithic activity in the region (Taçon et al. 2013), see fig 3.4, p81.

The rock art production sites of the Kurnool district characterise the inland, semi-arid geographies of Andhra Pradesh, conjoined to the north eastern state boundary line of Karnataka. The rock art of Karnataka is explored more fully in pp 81-90 as it is within this state that the rock art documented and analysed in this thesis is situated. However, to highlight the variety of rock art, in terms of visual identification, production technique and contexts, an example of rock art within the coastal region of Andhra Pradesh is discussed.

The rock art site of Naidupalli is a site in coastal Andhra Pradesh consisting exclusively of petroglyphs which cover an area of over ten square kilometres, on a shale geology (Chandramouli 1995). Situated within the same spatial range is a habitation mound complete with polished stone axes, faunal and human bones, ceramic sherds, beads, bangles, metals and lead coins indicative of a wide range of human activity. Some of these artefacts such as the polished stone axes, faunal remains and ceramic sherds are postulated to have

Neolithic origins (Chandramouli 1995, 32). However, the published literature remains unclear as to the forms of most typological details about the material assemblage. Over 200 megalithic structures of stone circles and avenues to the north-north east of the main accumulation of rock art was also observed, which had been subjected to extensive modern quarrying (Chandramouli 1995, 28).

The petroglyphs at Naidupalli mainly consist of numerous visual styles of bovine, with differing anatomical proportions, presence of humps, shapes of horns and differential human association which do not fit easily into a contextual or chronological sequence (Chandramouli 1995, 30). Additionally there are also numerous instances of a series of straight line, geometric forms, intersected by other straight lines, circular finishing details, and sometimes complete transformations into anthropomorphic figures (Chandramouli 1995, 32). Their significance or wider meaning is elusive at this stage, see Chapter five, fig 5.11, p154 in this thesis for striking visual similarities between the anthropomorphic petroglyphs described by Chandramouli (1995) and petroglyphs documented at Maski.



Fig 3.3 Photograph of rock paintings from Billasurgam Cave, Andhra Pradesh, solid red pigment anthropomorphic figures (Tacon et al. 2010, 341, fig 7).



Fig 3.4 Digitally modified photograph showing a series of nested diamond petroglyphs from Billasurgam Cave Complex (Taçon et al. 2013, 1791, fig 7).

Having briefly examined current knowledge about rock art within the Indian subcontinent, the rest of this chapter presents current knowledge about the rock art of Karnataka. It also incorporates a critical discussion of the use of style as an ordering mechanism for rock art in the region and describes how style is understood within the context of this thesis. The granitic-gneissic zone of Karnataka is argued to be the richest rock art zone in South India (Chandramouli 2002, 178). It has an extensive history of rock art research corresponding to petroglyphs, whilst the other regions described above have developed rock art classification schemes based upon rock paintings and drawings, although the site of Naidupalli is an exception.

That is not to say that there is a scarcity of painting sites in Karnataka as findings at Hire Benakal, Piklihal, Kadebakale and Brahmagiri have attested. Rock art at these sites bear a similarity to the rock art of Andhra Pradesh in terms

of colour and recognisable images (Allchin 1960; Bauer and Trivedi 2013; Gordon and Allchin 1955). Historically, in Karnataka it is rock paintings that were only noticed in the mid twentieth century and petroglyphs or “rock bruising,” that have been subjected to observational commenting by colonial antiquarians such as; F. Fawcett (1892), D.H Gordon (1951) and B. Foote (1887) since the nineteenth century. The petroglyphs are named as bruising because they are not deeply engraved or scratched into the rock but applied with a soft, but labour intensive percussion which removes the top layer of rock surface (Fawcett 1892, 151), see fig 3.5 below.

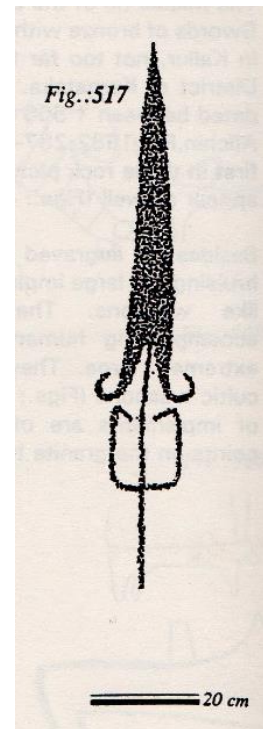
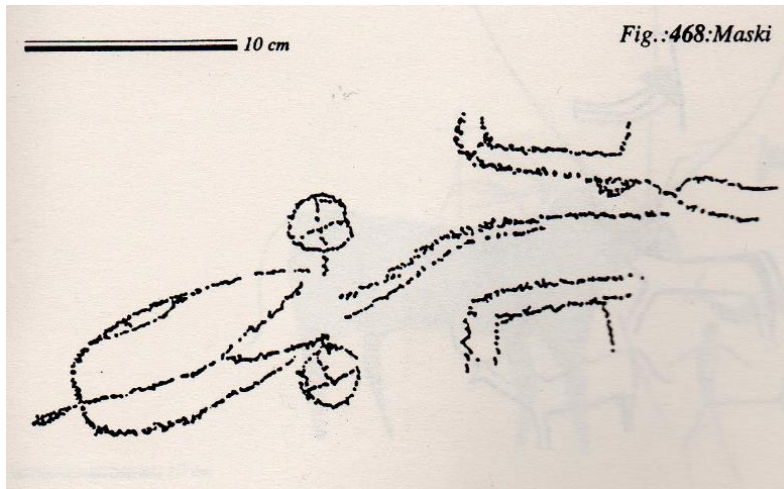


Fig 3.5 Photograph of an example of bruising technique used to produce motifs commonly found in Northern Karnataka. Motif is approximately 20 cm in width (source: author).

The location of rock art sites in Karnataka are plentiful, as are classifications of identifiable motifs; concentrated in the Raichur and Bellary districts, there has been a general agreement amongst scholars that the rock art of Karnataka is in necessary need of academic attention (Brooks and Wakankar

1976, 108). An acclaimed example of such survey work was the *Rock-Paintings and Bruisings of North Karnataka* project led by A. Sundara, which served to provide new localities for rock art in South India and placed a documenting emphasis on the paintings of Karnataka (Robinson in press, 10). Additional investigations by A. Sundara in the Karnataka region have served to document other rock painting locations (Sundara, 1974, 1984, 2006).

Other examples of rock art survey work in Karnataka include petroglyph documentation and partial context descriptions of specific motifs by Erwin Neumayer in his 1993 publication *Lines on Stone*, which include some specific motifs at Maski, displayed in figs 3.6 and 3.7 p84. In his doctoral thesis, Raymond Allchin makes passing descriptive comments regarding petroglyphs present in the Raichur district in Karnataka, namely at Piklihal and Maski. "There are many rock bruised animal and human figures on the highest points. The humped bull occurs many times, whilst the elephant and buffalo also occur, as does the tiger and the deer" (Allchin 1954, 169). Additionally, there have been efforts to record geometric or more enigmatic motifs in the form of intersecting squares, double lines and knot designs present in the rock art corpus of Karnataka (Sundara 2002). It is also argued that most geometric designs were produced by prehistoric communities, therefore it is impossible to understand their significance directly (Sundara 2002). Designs existing in the same space through time acquire new or alternative meanings to the differing communities acting with them (Sundara 2002, 51).



Left, Fig 3.6 Sketched representation of a drawn chariots rock bruising, Maski. Right, Fig 3.7 Sketched Representation of a weapon/ processional banner, Maski (Neumayer 1993 179, fig 468 and 194, fig 517).

Knowledge about the content of rock art in Karnataka is drawn from numerous, separate exploratory research projects, described on pp 80-83, which have placed a focus on initial discovery and documentation of motifs, followed by visual identifications of different motifs. This has led to a cumulative descriptive indexing of rock art motifs within the Karnataka region. However, this leaves them as identified images divorced from their landscape context, other motif forms and chronological placement, although research into the contextual setting of rock art motifs has been attempted in recent years (Arjun 2018; Boivin 2004a; Boivin et al. 2007a; Neumayer 1993, 2013; Sundara 2002). Sundara noted a spatial proximity between geometric knot designs and cattle motif, possibly to display wealth (Sundara 2002, 55). Neumayer argues that most rock art is found in shelters or on vertical facing rock walls (Neumayer 1993, 22.). However, as demonstrated by work carried out by Ravi Korisettar and colleagues at Sanganakallu-Kupgal, and also by the rock art documented during the course of

this thesis, the contextual description employed by Neumayer is not always applicable and petroglyphs are most commonly found in open air contexts.

Preliminary observations at Sanganakallu-Kupgal within the context of the Bellary Archaeological Research Project noted concentrations of petroglyphs along the 'black rocks' of the dyke, with a particular amalgamation at the highest and northern-most granite hill. Interestingly, the name of this granite hill has changed throughout the centuries from Peacock Hill (Foote 1887) to Kupgal Hill (Boivin, 2004a) and finally Hiregudda (Robinson in press). Cattle and anthropomorphs dominate the proportional accumulations of rock art at Sanganakallu, yet what appears to be elephants, tigers, deer, buffalo, birds, abstract motifs (cup-marks, rows of dots, ladders), religious symbols and footprints are also present. There are also many single motifs that are apparently unrelated. Large complex narrative scenes appear to be absent, despite the vast accumulations of closely arranged, superimposed images (Boivin 2004a, 43).

Preliminary observations noted by Boivin and colleagues have argued that the location of some rock art images, mainly humped bulls, are in areas that are difficult to access, requiring a degree of agility that may be attributable to the production of certain bull images by young, athletic males (Boivin 2004a, 45); see fig 3.8, p86. These locations are also difficult to view in large groups, indicating that the production and consumption (viewing) of specific images was physically restricting and suggests a ritual context for production (Blinkhorn et al. 2012, 190; Boivin 2004a, 45). However, many other depictions of a more crude, stylised format are located near habitation settlements and may relate to more accessible activities, demonstrating both the incredible diversity of rock art within a single site and the potential social value of rock art to multiple spheres or activities of society.



Fig 3.8 Petroglyphs at Hiregudda located on almost inaccessible surfaces (Boivin 2004a, 45, fig 4).

More recently at Sanganakallu, academic focus has shifted from a visual categorisation of rock art images in South India to an investigation of how the production of rock art can be connected to wider elements of the prehistoric landscape (Boivin et al. 2007a). The so called 'ringing rocks' in the wider South Indian landscape are mostly unacknowledged in academic literature, yet are frequently, if briefly, mentioned in guidebooks and public media; located at sites ranging from prehistoric previously occupied rock shelters to currently used

temples (Boivin et al. 2007b, 19). These sonorous stones are a phenomenon also noted by Raymond Allchin, “There are also several blocks of stone which resound when struck and which have hollows worn in them by striking; the practice being continued by modern herd boys” (Allchin 1954, 169). The ‘ringing stones’ of Hiregudda are mostly located at the top of the dolerite dyke and often decorated with multiple groove-like impressions and figurative imagery. In addition they are also located in conjunction with grinding grooves as evidence of stone axe production and crop-processing activities, see fig 3.9, p88 (Brumm et al. 2006). Demonstrations at Hiregudda have shown that specific rocks emit loud, musical tones when struck with granite stones and discernible traces of scuffing on rocks in the proximity of this site (fig 3.10, p88) provide evidence of this specific auditory activity in the past (Boivin 2004a, 47). The openness of the Deccan landscape obstructed by natural granite outcrops has resulted in interesting acoustic effects, meaning that sounds from ringing rocks and current activities of nearby villages can be heard up to one km away (Boivin et al. 2007a, 273).



Left, Fig 3.9 Grinding grooves produced during the grinding of stone axes. Right, Fig 3.10 An example of ringing stone with scuff marks along the top (Boivin et al. 2007a, 283, fig 13 and 275, fig 3).

The exceptional auditory qualities of the Deccan landscape may also have been perceived by past people who inhabited it. The association of sound with multiple archaeological contexts suggests a wider past association with auditory processes than researchers previously thought. It may be that auditory perceptions centred on stone-based activities, ringing rocks, petroglyphs made by percussion, crop processing and stone axe manufacture played a part in orientating people in the world through a combination of meaningful soundscapes and significant visual features (Boivin et al., 2007a). This development accentuates the potential for studying South Indian landscapes as integrated spaces through time. A similar phenomenon has been recorded across the Swedish landscape (Hultman 2010). However, while the influence of soundscapes is still an emergent branch of research, any observations remain speculative.

The above examples demonstrate how the setting and production of some rock art in Karnataka has been interpreted regarding its wider landscape setting. However, the placement of rock art in a chronological sequence has proved troublesome for rock art in Karnataka and the world over. The first chronology for the rock art of Karnataka was described in the 1960 excavation report of Piklihal

by F.R Allchin, which built upon chronological sequencing suggested during his doctoral thesis. This relative chronology was achieved through a comparative stylistic examination, cross referenced with nearby archaeological remains; Allchin's stylistic chronology of rock art from Piklihal goes as follows:

1. Neolithic: bruising of wild and domestic animals and male humans. Ochre paintings of bulls, the humped bull is the most common theme.
2. Early Historic: red ochre paintings of large groups of hunters/warriors carrying metal weapons often riding horses or elephants.
3. Medieval-Modern: engravings of Hindu sectarian symbols, scratchings and bruising of umbrellas, temples, men, bulls (of a different style to the earlier contexts) and white painted groups of dancing figures (Allchin 1960, 99).

The stylistic chronology presented above is discussed in more detail in section 3.3.3 pp 97-100 and is not critically examined any further in this section. The chronology presented by Raymond Allchin has been adopted by rock art research projects working within Karnataka (Allchin and Allchin 1994; Boivin 2004a), and remains an influential means of sequencing rock art motifs in the region. More recently, rock art research at Brahmagiri has sought to understand chronological sequencing of rock art at an intra-site level through distinguishing differential pigment shades within one panel, rather than rely on a blanket acceptance of chronological framing through motif classification (Arjun 2018, 5). Despite the problems of obtaining reliable rock art chronologies, an issue that has often been raised in Indian rock art research (Allchin and Allchin, 1994; Blinkhorn et al., 2012; Boivin, 2004a; Brooks and Wakankar, 1976; Robinson, in press), the biggest problem faced is the lack of systematic surveys in light of the current danger to the continued preservation of rock art and other archaeological features in South India.

The landscape of North Karnataka has been modified to varying degrees by human populations for the last 7000 years and prehistoric-historic societies faced the same environmental pressures of erosion, vegetation change and water irrigation as the local inhabitants of the landscape experience today (Morrison, 2013). However, the growth of India as part of the global market economy is destroying many archaeological remains before they have been

recorded. As a result, many archaeological sites are tragically and unknowingly lost (Boivin et al. 2007a, 267). The Deccan plateau is subject to extensive granite quarrying where many thousands of tonnes of rock are extracted as a lucrative resource to the extent that, “nowadays there is hardly a hill which is not scarred by dynamite blastings in a most unscientific and uncontrolled way” (Neumayer 1993, 30). All the sites discussed in this chapter have been subject to some form of quarrying that has been witnessed either during research fieldwork (Boivin 2004b, 48), or observed upon revisiting a site, see Allchin and Allchin (1994, 315) for an example of destruction at Maski). At present, the high intensity landscape transformations and resource extraction in South India pose survival concerns for prehistoric and historic rock art in Karnataka and elsewhere in the Indian subcontinent, as the majority do not have adequate conservation protection measures afforded to them.

Currently the rock art of South India stands as a direct acknowledgement of prehistoric and historic communities who inhabited, and actively engaged with, these landscapes. The petroglyphs and paintings of the Deccan allude to the longevity of rock art as a cultural tradition from the Neolithic to the modern age, albeit a reminder of a cultural tradition whose absolute age is still difficult to access. The next section discusses a problematic means of attributing age to rock art motifs, namely petroglyphs in Karnataka, the concept of chronological ordering through “style”.

3.3 Style

3.3.1 Understanding style

The concept of style is a challenging one. What it is understood to be, represent or involve has changed through time; how it is understood within archaeological research has also shifted, due to the historical development of the discipline itself (see Chapter two, pp 33-38). This section focuses some attention on how style has been understood and applied to analysing rock art at a global level. It then moves on to assess how stylistic analyses have been applied to the vast swathes of rock art across the Indian subcontinent, with a special focus placed on the petroglyphs of Karnataka, as it is those that make up the content of this thesis. It concludes with how style is to be understood and utilised within

the context of this thesis to enhance understandings about prehistoric-early historic transitional rock art at Maski with regards to developing notions about situated anthropomorphic and animal interactions.

The historical development of notions of style and how it is utilised in various avenues of archaeological material culture, such as ceramics, is too broad a topic to examine within the confines of this thesis, but see Carr and Neitzel (1995), Conkey and Hastorf (1990), Greenhalgh and Megaw (1978), Hegmon (1992) and Schapiro (1953) for how style has been understood within archaeological and anthropological perspectives through time. Broadly speaking, style was proposed in opposition to function as “formal qualities that are not directly explicable in terms of the nature of raw materials, technology of production or variability in the structure of the technological and social subsystems of the total cultural system” (Binford 1972, 25). Attributes of material culture deemed to be stylistic were termed “stochastic,” their appearance in the archaeological record was unpredictable and identified in opposition to “useful” attributes (Dunnell 1978, 200). Within archaeology it appears that little attention was given to the complex meanings of style once it had been identified. In this paradigm style appears to have become synonymous with the decoration of artefacts, most appropriately applied to the study of ceramic patterning (Hill 1970; Longacre 1991; Washburn 1983).

The recognition that distinct groups of artefacts possessed sensory attributes which could be similar or variable, and that these changes could be traced in the archaeological record ensured style did not remain as a residual visual element of material culture once everything else had been explained (Hegmon 1992, 520). One key argument was that stylistic variables were essential for the communication of information (Wobst 1977), however questions about what was being communicated, to whom, by whom for whom and the wider consequences of this were and are still open for extensive debate (Conkey 1978, 2010a; Sackett 1973, 1977, 1985, 1986, 1990; Wiessner 1983, 1985, 1990, 1991).

Sackett argued that style was the recognisable appearance of formal variation in artefacts, a result of choosing between multiple and appropriate alternatives to meet the same end, and that stylistic significance was what these choices implied about a specific cultural setting (Sackett 1977, 1973). The

resulting terminology divided stylistic variation into a series of conscious choices implemented by an artisan upon an artefact. *Isochrestic* variation reflects unconscious choices, learned behaviour through enculturation within a specific cultural setting (Sackett 1982, 1977), whilst *iconological* variation contained conscious group identifying assertions, about one group to another (Sackett 1982, 82).

Iconological style itself could be further divided, according to Wiessner (1990, 1985, 1983), in terms of transmitting variable information about either group or personal identity termed *emblemic* or *assertive style*. Utilising similarities and differences observed amongst San projectile points, Wiessner argued emblemic styles were material culture variants that transmit clear referents of social identity of a distinct population via comparison to a distinct “other” (Wiessner 1983, 257), whilst assertive style were attributes that communicated personal identity (Wiessner 1983, 258). The concept of asserting meaning through style also extends beyond one form of material culture. Additionally, Macdonald has suggested other forms of technical vocabulary to describe types of stylistic variation in material culture, arguably representative of different forms of social behaviour termed *protocol* and *panache* (Macdonald 1990). Protocol refers to aspects of stylistic variation which appear in relation to the confirmation of social group identification, whilst panache refers to variation in accepted styles, to indicate behaviours related to the negotiation of the individual within a group structure, (Macdonald 1990; Smith 2008). Sections 3.3.2 and 3.3.3. moves on to how style is utilised within rock art research and how understandings of style have influenced current knowledge about the petroglyphs of Karnataka.

3.3.2 Using style in rock art research.

A concern for style, and its utilisation as an analytical tool is consistently prevalent in rock art research (Brandl 1973; Clegg, 1993; Domingo Sanz 2012; Francis 2001; Franklin 1993; McDonald 2016; Whitley 2011). It is utilised to discuss the significance of aesthetics within rock art motifs (Heyd 2012; Heyd et al. 2008; Leroi-Gourhan 1982), along with identifying regional boundaries of visually similar rock art forms (see Chapter two, p63 for more detail). Levels of variability in the stylistic elements comprising similar visual motif categories and

locations are argued to play a role in communicating important social information within and between social groups (McDonald 2008, 2016; McDonald and Harper 20016). Additionally, graphic discontinuities occurring in specific bodies of rock art are argued to indicate wider social changes impacting on the society who produced them (McDonald 2016). Elements of stylistic variability or discontinuity in the presentation of rock art motifs are related to understandings of rock art production as a tool of social strategy (McDonald and Veth 2012), linked to assertions of group identity, see p101. The argument that stylistic variability within the same motif categories communicates important group information has interesting implications for understanding the rock art presented in this thesis, and is discussed more in chapter eight, section 8.3.3.

One of the main uses of style within rock art research is its role in ordering motif forms based upon perceived visual differences in the same identifiable motif classification within a relative chronological framework. This is evident in the schema of early chronological frameworks for rock art production periods in Australia, giving an evolutionary visual scheme from the Panaramitee Tradition, at around 40,000 years ago, through to Complex Figurative Tradition continuing into fairly recent times (Franklin 1993, 2011; Maynard 1977, 1979). Although this model for sequencing rock art is still broadly influential in Australian rock art research, it has been incorrectly applied in some regions, see McDonald (2017). This model also fails to take into account the reuse of motifs through time, recasting their meaning into mythological Aboriginal narratives (McDonald 2013).

The division of rock art into chronologically bounded groups based upon similarities and differences of motif forms has been the primary, and most influential, means of utilising style as a sequencing device within rock art research in India. The rock art of Bhimbetka, introduced in section 3.1, pp 68-72, has been subdivided into various phases based upon different motifs forms and observed common stylistic attributes amongst motifs, which stand in opposition to other groups of stylistic attributes. The resulting chronological phasing is then loosely tied to a significant period of cultural development, see table 3.2, p94 for one example of how style is utilised to produce chronological rock art sequences at Bhimbetka.

Table 3.2 taken from (Mathpal 1998). An example of the chronological divisions of rock art motifs at Bhimbetka.

Succession for Art at Bhimbetka	
Prehistoric	
Depicting the Life and Environment of Hunter Gatherers	
Phase 1	Large-sized animals (buffalo, elephants, wild bovids, big cats), outline/partial fill with geometric patterns. No humans.
Phase 2	Diminutive humans and animals, dynamic, naturalistic. Hunters in groups, Deer are present. Red, white, green colouring.
Phase 3	Large-sized animals with vertical strips and humans.
Phase 4	Schematic humans.
Phase 5	Decorative animals, large horns, drawn in fine thin lines, body in-filled with honey comb, zigzag and concentric square patterns.
Transitional	
Beginnings of Agricultural Life	
Phase 6	Schematic, body of animals are rectangular with stiff limbs, humps on bovines, sometimes with adorned horns. Chariots and carts with yoked oxen.
Historic	
Phase Seven	Riders on horses and elephants, groups of dancers, Thick red and white.
Phase Eight	Bands of marching soldiers, chiefs riding elephants and horses, equipped with long spears, swords, bows, arrows, rectangular shields. Horses elaborately decorated, white infilling, red outlining.
Phase Nine	Geometric human figures, known religious symbols and inscriptions.

The main stylistic phases presented at Bhimbetka are tied to the main cultural markers understood within the development of 'civilisations' in the Indian subcontinent: prehistoric hunter-gatherer communities; transitional agricultural communities and Historic civilisations, tying in with documentary sources. Each cultural phase is represented by the specific appearance of temporally significant motif forms; for example wild fauna indicate a prehistoric hunter-gatherer date preceding the appearance of bovine forms, indicate a cultural concern and chronological link to agriculture (Chandramouli 2012; Neumayer 2013, 2014, 244). The appearance of bands of armed warriors on horseback along with known religious symbols are again argued to indicate a more recent date, but the appearance of the horse in Indian rock art as a chronological boundary indicator between the prehistoric and historic periods is also chronologically suspect (Neumayer, 2014, 247) . There is a lack of acknowledgement in the rock art literature about the overlapping ways prehistoric communities interact with their environments rather than the sudden and dichotomous change from hunting to farming. Additionally, choices in drawing a specific motif form are also presented in the chronological style indicators at Bhimbetka with a transition from 'dynamic' to 'infill/zig-zag' to 'schematic,' however it is often uncertain within the literature, how the vocabulary of these terms is intended to be understood.

To date there has been little investigation into how motifs are spatially associated on panels at Bhimbetka, beyond identifiable motif classification procedures, or if motifs were interacted with after their initial production event. Those avenues of research could provide illuminating means of thinking about the contexts in which the motifs were produced and their relevance to the communities that produced and viewed them through time. The stylistic chronology developed at Bhimbetka also focuses exclusively on relative phasing for paintings and drawings, which is different in production technique to petroglyphs; the latter affecting the types and degree of detail exhibited in the motif forms.

Stylistic choices in production technique can also have implications on the wider meaning of rock art. Amongst the Martu in the arid region of Western Australia, engravings and pigment art are attributed to different creators based upon different production techniques of the same motif category, which serve to formulate Dreamtime narratives (McDonald 2013). Regardless of its applicability

to other rock art production techniques, the stylistic chronology based upon pigment art presented in table 3.2 p94 has served to underpin much of the stylistic chronology of rock art in the Indian subcontinent as a whole. The technique of bruising, widespread in the rock art of Karnataka, is not found among the well-known rock paintings of Bhimbetka (Mathpal 1990), suggesting the potential to make unique observations about South Indian rock art, distinct from earlier interpretations that are influenced by pigment art chronologies.

There have been a number of rock art focused publications advocating an abandonment of stylistic approaches altogether (Bednarik 1995; Lorblanchet et al. 1993) in favour of chronometric or absolute methods, following the initial success in obtaining radiocarbon dates for rock art (van der Merwe et al. 1987). An intensive program of absolute dating of rock art paintings at the Chauvet cave system, France, utilising AMS dating programmes, Speleotherm dating using U/Th TIMS (thermal ionization mass spectrometry) and pigment analysis, has been successful in providing convincing dates for Palaeolithic rock art production (Clottes and Geneste 2012). Radio carbon dates obtained from beeswax overlying rock art has also been pivotal in dating some motifs to the prehistoric period in Northern Australia (Nelson et al., 1995). Other methods of scientifically dating rock art are covered in Steelman and Rowe (2012), *Radio Carbon Dating of Rock Paintings: Incorporating Pictographs into the Archaeological Record*.

However, rock art such as pecking, bruising, scratching or engraving is produced by reductive techniques, without the obvious organic additions incorporated in motif production practices. Researchers have experimented with both varnish micro-lamination and cation-ratio dating in attempting to work out chronological sequences for petroglyph production (Dorn and Whitley 1983; Francis et al. 1993; Liu and Broecker 2007). The assumption behind varnish micro-lamination dating is that particles accumulate over the surface of a rock over time as a sedentary deposit, usually at a rate of only a few tens of microns per 1000 years, depending on the rate of accumulation in a specific region (Dorn et al., 1992). It is also assumed that the rate of accumulation will exhibit a measurable consistency and point to a potential age range based upon the ratios of positively charged atoms of trace elements within varnish laminations (Dorn 1983). These assumptions are based upon the utilisation of an appropriate set of samples demonstrating incremental accumulation of laminations without any

observable erosional interference from external factors such as surface run-off or drip staining (Whitley 2012, 610).

Direct dating methodologies have been most successfully implemented on rock art produced using additive techniques with a pigment containing organic matter, such as charcoal, which can then be sampled for radiocarbon dating. Additionally, direct dating methodologies often aim to retrieve mineral or organic samples from deposits overlaying motifs, and so provide a maximum latest age of production, rather than dating the age of the motif itself due to lack of organic material in the painting. Finally, the historic debate around the reliability of using cation-ratio and varnish micro-lamination dating; see Dorn and Whitley (1983), Francis et al. (1993), Watchman et al. (2000) and Watchman and Campbell (1996) for details, has ensured that means of directly dating petroglyphs in open air landscapes has remained subject to suspicion.

Given the uncertainty about the production of absolute dates for petroglyph sequences and although relative dating methods utilising style can be problematic, they remain significant for providing a means of sequencing rock art. When rock art is corroborated with spatially associated and temporally framed archaeological materials, more confident assertions about when rock art was produced and subsequently interacted with can be made, enabling its incorporation as useful material evidence in archaeological research projects. This section moves on to look at how style is understood and utilised within the rock art of Karnataka in order to present an understanding and use of stylistic sequencing within this thesis.

3.3.3. Stylistic sequencing in the rock art of Karnataka.

An influential work entitled *Rock Art of Northern Karnataka*, authored by F.R Allchin and B Allchin was published in 1994, building upon the relative chronology of rock art at Piklihal, see p89. This article provides an overview of rock art in North Karnataka and looks in particular at the stylistic development of the humped bull motif argued to originate during the Neolithic Period, located on rocky hills in the proximity of Neolithic ashmound and habitation sites (Allchin and Allchin, 1994). By correlating rock art designs with excavated materials from ashmounds and habitation sites, in particular terracotta figures of slender, long-

horned, humped cattle, it has been consistently argued for a Neolithic origin of rock art in Karnataka in keeping with an economy of cattle-keeping pastoralism, focusing on the *Bos Indicus* cattle species (Allchin and Allchin 1994, 22). This work builds upon the excavations at Piklihal by Allchin in the 1950's (fig 3.11, below), and from rock art panels at Maski. The resulting stylistic chronology of bull representations is summarised below from earliest to most recent, or from the Neolithic through to Modern periods:

1. naturalistic style, slender light bodies with articulated knees.
2. exaggerated style, continuing with slender bodies.
3. diagrammatic/elliptical style, showing a reduction in size of images.
4. heavy bodied style.
5. crude style.

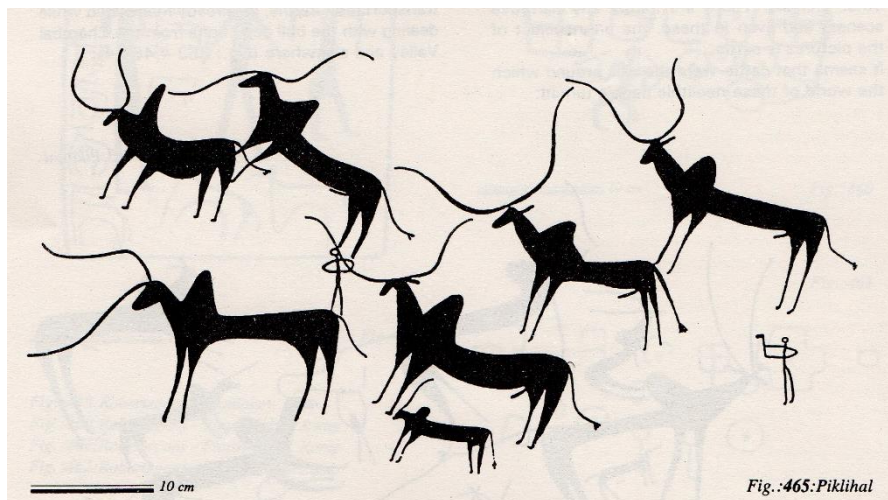


Fig 3.11 Sketches of humped bulls from rock bruising at Piklihal (Neumayer 1993, 178, fig 465).

Additionally, the chronological sequencing of humped bull depictions is supplemented with additional spatial rock art information. Allchin comments the humped bull is found singly or in groups, overlooking caves or settlement areas, or in secluded rock clefts, sometimes in pairs, sometimes standing opposed

(Allchin 1954, 252). Allchin states the general style at Maski is less graceful than the paintings of Piklihal; the horns are variable, as are the humps, sometimes four legs are shown, sometimes they are paired (Allchin 1954, 252). Bruisings were generally found on exposed rock faces, overlooking occupational areas but also on secluded clefts and corners (Allchin and Allchin, 1994). Additionally, older motifs exhibited a darker (orange/brown) patina than younger motifs (Allchin and Allchin 1994). Rock art paintings, usually in red or orange, appear only to be found in secluded rock shelters (Allchin and Allchin 1994).

The reported secluded nature of these rock paintings may only be down to the protection sheltered areas have from other natural processes of erosion, rather than being representative of a locational distinction in rock art production methods. Furthermore, although humped bulls make up a large proportion of Neolithic rock art, there are a far greater diversity of recognisable motif representations present within the rock art of Karnataka. For example, in Allchin's doctoral thesis, he makes comments about different anthropomorphic forms present in the rock art of the Raichur area. "Anthropomorphs occur in sequences of pin men" (Allchin 1954, 169). Additionally, there is the presence of "single anthropomorphs, typically shown with a long ballooning of the thighs and a figure with a staff occurs several times" (Allchin 1954, 251).

Chandramouli states that the understanding of style falls within three broad conceptual divisions: (1) the identification of subject matter; (2) patterns in the motif variability of form and (3) ordering in terms of colour schemes and superimposition (Chandramouli 2014, 8). Work with petroglyphs at Karnataka have vastly prioritised the stylistic considerations of one type of motif form, meaning a quantitative documentation of recognisable motif forms as a proportion of a visual corpus of rock art motifs is lacking. Additionally, there is a lack of investigation into the nuanced visual differences of motifs which fall into the same, identifiable category using definable terms which can be understood by multiple researchers, see Chapter four pp 126-128 and p131 for more details. The chronology of rock art based upon stylistic variants in humped bull motifs provided by the Allchins also stems from an analysis of three moderately sized panels from the Raichur district, meaning there is great potential for further rock art panels to be analysed in terms of chronological sequencing.

Although research by Allchin and Allchin (1994) provides a better clarification than previous investigations into the nature of humped bull representations in Karnataka during the Neolithic, much is still unknown about other identifiable images in terms of their spatial patterning and relationships to both other images and features within the landscape. A bias towards rock art depictions of Neolithic cattle limits the potential to investigate other aspects of prehistoric activity in South India, beyond general comments about Neolithic agro-pastoral society. In light of the continued uncertainties surrounding a large proportion of rock art in Karnataka, recent research projects such as the Bellary District Archaeological Research Project, discussed in section 3.2, pp 84-88, have sought to incorporate a study of rock art as a type of archaeological material culture in conjunction with excavations and landscape surveys centred around Sanganakallu-Kupgal.

Project results include a revised site specific chronology, drawing upon the chronologies proposed by Allchin and Allchin (1994) to contextualise the surrounding Neolithic and Megalithic elements present in the immediate landscape (Boivin, 2004a, 44), including the ashmounds, habitation and megalithic monuments discussed in Chapter two, pp 42-50. The contextualised chronology for Sanganakallu is demonstrated in table 3.3 p101, although it has been called into question by some scholars. For example Bauer in his doctoral thesis, noted the difficulties in analysing 'naturalistic' and 'crude' styles based on the subjectivities of differing researchers and stresses the need to take the skill of the rock art creator into account (Bauer, 2010, 149-150). It has also been suggested that the naturalistic, 'dancing' anthropomorph design, originally dated to the South Indian Neolithic is instead related to the early 1st millennium BC, evidenced by comparable images depicted on painted pottery fragments found in well stratified contexts at Kadebakale and consequently radiocarbon assessed (Bauer 2010, 149–150).

Table 3.3 Relative chronology of rock art at Hiregudda summarised from Boivin, 2004a.

Relative Chronology	Representative Motifs	Supporting Evidence
Neolithic	Naturalistic cattle, ithyphallic figures, sexual scenes, 'dancing' anthropomorphs.	Ashmounds, ground stone axe production sites, located on highest vertical surface, patina creating a "dull" effect. (Boivin et al., 2007a).
Megalithic	Crude cattle, horses, anthropomorphic figures.	Rock art patina, stylistic differences to Neolithic images.
Early Historic/Medieval	Crude cattle, elephants, horses, anthropomorphs, writing in Kannada.	Elephants introduced to the region and domesticated during 8 th century AD, property of the wealthy (Robinson and Ramadas, 2004, 17).
Modern	Religious symbols (Hindu, Muslim), hearts with arrows, writing in Kannada and Latin alphabets , anthropomorphs, snakes, peacocks.	Recent religious traditions and writing represented. Older rock art incorporated into local religious traditions (Boivin, 2004a; Robinson and Ramadas, 2004).

The chronological sequencing of rock art through style in Northern Karnataka, described above, still follows a predominantly motif-based identification, used to indicate association with specific archaeological time periods from the Neolithic through to the Iron Age, Early Historic, Medieval and Modern ages. More recently, an alternative approach to chronological sequencing through pigment shading and superimposition matrices, has tried to

expand beyond assigning visually stylistic chronological boundaries for rock art at Brahmagiri (Arjun 2018). However, if a stylistic approach to rock art is understood as much as a series of behaviours encompassing a way of doing (Hegmon 1992), then further investigation into the stylistic variability within the same motif category may yield interesting results. In particular, what motif variability could be communicating within and about a social group responsible for producing and interacting with specific motif forms.

This means of understanding style as a 'way of doing,' have successfully underpinned analyses of hunter-gatherer rock art in Western Australia (McDonald 2013, 2016; McDonald and Veth 2011, 2012) and the Sydney Basin (McDonald 2008, McDonald and Harper 2016). These studies argued that stylistic heterogeneity amongst a single motif category was not solely based upon an environmental dichotomy, in this case arid vs fertile environments (McDonald 2008, 2016; McDonald and Veth 2012). Instead single motif types demonstrated a range of localized stylistic variation within a single type of environment, which could also be subsumed within broader open social networks (McDonald 2016 and McDonald and Harper 2016).

For example, the widespread use of anthropomorphic figures with headdresses was a widespread use of thematic choice in motif design, but the variation in the headdresses was a stylistic choice that was group dependent (McDonald 2016, 59). Additionally, these stylistic variations could be punctuated by breaks in production events, which may have socially significant consequences for the social milieu they were produced within, and how the motif corpus changed or was understood, when encountered (McDonald 2016). Similarly, stylistic heterogeneity amongst a like set of material culture or motif group did not necessarily mean visual statements about territoriality and resources, but could also signify a landscape zone intended for the aggregation of ideas for multiple social groups (McDonald and Veth 2012, McDonald and Harper 2016).

These examples, taken from an Australian context and using a mixture of formal and informed documentation methods, demonstrate that sequencing rock art using style can be used beyond hinging chronological sequences. By analysing motif variability within a category of common motif forms, over a defined spatial range, stylistic choices was used to display levels of differential

understanding within and between social groups. Additionally, punctuated sequences of rock art production provide indicators of how the meaning of rock art was subject to change over time as social groups changed within the landscape.

It has been argued by scholars that a critical approach to style is still in its infancy with regards to the rock art of the Indian subcontinent (Chandramouli 2014, 5). While it is vital to incorporate an element of motif category identification and production method within Indian rock art research, it is also important to consider intra-panel motif arrangement, inter-panel locations and the variability of elements within a single broadly recognised motif category. Moving further, in comparing elements of stylistic variability, relating to motifs and their production location across landscape spaces in Karnataka, it may provide ways of suggesting what rock art was communicating on a social level at different time periods, rather than only utilising style as a chronological sequencing tool.

Assessing patterns and differences in spatially associated rock art has the capacity to gain an enhanced understanding of how rock art styles encompass 'ways of doing', or an active way of how something is produced and why it is produced that way, whilst being able to notice if changes in those 'ways of doing' occur. By looking for patterns in 'ways of doing', suggestions can begin to be made about how rock art was used by people in accumulative landscape processes through time. Additionally, anomalies in accepted stylistic production practices of rock art have the potential to be noticed and understood as either sporadic instances of interaction with rock art in landscape settings, or part of a wider range of episodic production practices, highlighting the place of rock art as a socially significant medium.

3.4 Conclusion

This chapter has presented the current condition of rock art studies within the Indian subcontinent, analysing the varied documentation methods used to create regional rock art areas and exploring how the categorisation of rock art motifs has contributed to knowledge about the content of rock art. This chapter has also presented how rock art research in the Indian subcontinent currently aligns with contemporary archaeological understandings, namely associations with hunter-gatherer or agro-pastoral subsistence patterns. It has argued, using the extended example of humped bull petroglyphs in Karnataka, how certain motif content is prioritised to chronologically pin specific motifs to specific bounded cultural periods within Indian prehistory. The chapter concludes by presenting the author's understanding of style as a concept and how it will be used within the context of this thesis as a 'way of doing', which can follow specific conventions but be also subject to thematic variation for a multitude of reasons. The following Chapter four through to Chapter seven present methodology and results for documenting and analysing petroglyphs in Northern Karnataka, namely the region of Maski, to assess how rock art of this particular region can add to archaeological knowledge of South India.

Chapter Four. Incorporating rock art documentation into existing archaeological research projects

4.1. Introduction

The previous chapter provided an overview of broad understandings of rock art research within India, before focusing on regional understandings of rock art documentation, analysis and interpretation within a South Indian context. It described how studies of rock art in India have coincided with archaeological knowledge at an overarching landscape level and how means of ordering motifs by style have remained the key means of temporally framing rock art within South India. This chapter provides a critical explanation of the methodology used within this thesis to document rock art at Maski, in conjunction with a developed archaeological research project.

The structure of this chapter goes as follows; Section 4.2 contextualises historical research at Maski and introduces it as the study area for this thesis. Section 4.3 describes the Maski Archaeological Research Project (MARP) its history, aims, and how, as an ongoing project, its results are contributing to a reassessment of prehistory in South India. This section also justifies the author's involvement within MARP. Section 4.4 describes historical research into rock art at Maski and section 4.5 explains the methodologies used to record rock art sites, panels and motifs, which form the primary material used in this thesis.

4.2 Contextualising historical research at Maski.

Maski is the name given to a town in the Lingasugur Taluk, located in the Raichur District, north eastern Karnataka, South India. The Maski river (nullah) lies to the north of the town, a tributary of the Tungabhadra, see fig 4.1, p106.



Fig 4.1 Satellite Image with country inset map displaying study area (Google Earth, accessed Sep 2014).

Maski is located within a regional semi-arid environment of the Deccan Plateau in north eastern Karnataka. It is characterised by flat plains interspersed by hilly gneissic-granitic outcrops, which form part of the residual hill morphology for the region. The ancient site, dating to the Early Historic period (Munn 1935; Thapar 1957), is located to the west of the present day settlement and surrounded on three sides by gneissic/granitic outcrops, known as Durgada Gudda, rising over 120m above the plains (Thapar 1957, 10). The present settlement of Maski has grown in size during the 20th and 21st centuries, from a village settlement when Thapar conducted excavations in 1954, to a larger town. The landuse surrounding the present day settlement is a mixture of agricultural and pastoral with some uncultivated areas, coupled with stone and sand quarrying and evidence of ancient gold mining.

The area surrounding the present town of Maski came into prominence following the discovery of a minor Ashokan edict located within a rock shelter on the north western edge of the Durgada Gudda outcrop. This minor edict consists

of several lines of inscription scratched into the gneissic rock of the rock shelter (Sastry 1915). This was the first inscription to be discovered giving the name “Ashoka” to the previously unknown ruler named *Devanampiyadevi* on other edicts found over the subcontinent (Sastry, 1915). This discovery also helped to expand the known geographical influence of the Mauryan Empire into South India (Allchin 1995).

The geology of the surrounding landscape is auriferous (locally known as the Maski-Hutti belt) and subsequent surveys, most notably by L. Munn, established the presence of ancient gold working mines near to the site of Maski (Munn 1935, 250). Ancient gold mining and processing areas, such as the Hutti gold mines 35km north of Maski, highlight connections between Maski and the role that gold extraction and processing may have played in the region as part of Early Historic local and imperial economies (Ahmad 1938; Thapar 1957; Yazdani 1938).

There have been a number of research projects conducted sporadically throughout the nineteenth and early to mid twentieth centuries at the current town of Maski and its surrounding regions. The results of these projects allude to the region’s significance as a place of human activity and settlement during prehistory, through to the Early Historic and Medieval periods (Ahmad, 1938; Allchin, 1954; Foote 1916; Gordon and Gordon 1943; Munn, 1935; Sastry, 1915; Thapar, 1957; Yazdani, 1938).

Explorations were conducted by Bruce Robert Foote during the years of 1876-1888 as part of the Geological Survey of the Raichur District of the H.E.H. (His Exalted Highness) the Nizam of Hyderabad’s Dominions. Foote made brief observations about the ancient site of Maski and the adjacent granitic inselbergs, and collected a number of artefacts (Foote 1916), which were subsequently procured by the government museum of Madras, now Chennai.

This was followed by the discovery of the minor Ashokan edict (pp 106-107) by C.Beadon in 1914 when mineral prospecting in the Nizam’s dominions (Sastry, 1915). In 1907-1920, repeated explorations were conducted by Leonard Munn as part of mine inspections in the Raichur District of the H.E.H. the Nizam of Hyderabad’s Dominions. Both Foote and Munn identified the Durgada Gudda outcrops and areas lying to the west of the present day Maski town as areas of

significant prehistoric activities (Foote 1916; Munn 1935). The explorations of Foote, Beadon and Munn were implemented with a geological focus in mind, whilst these investigations highlighted the prehistoric and historic significance of the area, they were not conducted with an explicit archaeological agenda.

Subsequent investigations from the 1930's have served to highlight other localities of archaeological importance within the vicinity of the present Maski town. In 1935-1937, two seasons of explorations were conducted around the Durgada Gudda outcrop, including excavations at six localities by the Department of Archaeology of the H.E.H. the Nizam of Hyderabad's Dominions (Ahmad 1938; Gordon and Gordon 1943; Yazdani 1938). The exploration reports mention seventeen important localities of dense surface deposits to the area west of the present day Maski village, on and around the Durgada Gudda outcrop, but these are not described in detail (Ahmad 1938; Yazdani 1938). In addition, the reports on the Maski explorations include information on a potential reservoir on the outcrops largest terrace, the rockshelter containing the Ashokan minor edict, a large distribution of megalithic monuments to the south east of the outcrop and dense distributions of artefacts documented on mounds to the east of the main outcrop (Yazdani 1938, 23).

The brief excavation reports are mostly associated with finds that are now thought to be representative of the ancient Maski settlement, lying to the west of the present day town and the east of the Durgada Gudda outcrop (Ahmad 1938; Yazdani 1938). Types of artefacts recovered include; human burials, carnelian and lapis lazuli beads, shell bangles, a multitude of ceramic forms, metal slag concentrations and two smelting furnaces (Gordon and Gordon 1943, 84; Yazdani, 1938).

In 1954, B.K. Thapar conducted one season of Archaeological Survey of India (ASI) excavation, coupled with documentation of surface finds at the ancient settlement site at Maski. Excavations of four cuttings (MSK-9 - MSK-12) helped to provide a systematic ceramic typology based upon contemporary work at Brahmagiri and analogies to other sites with similar artefact attributes, such as Sanganakallu (Thapar 1957). Based upon a stratified ceramic typology, Thapar proposed a range of cultural occupation from the Chalcolithic, Megalithic and Early Historic periods, providing dates of 1500 BC to AD 300, along with periods of Medieval occupation from AD 1000 – AD 1600 (Thapar 1957, 141).

The majority of Thapar's report is given to describing artefacts related to burial and habitation deposits contemporary with the South Indian Iron Age (1200 BC- 300 BC) and Early Historic Period (300 BC- 300 AD), further reinforcing a period of habitation practices contemporaneous with the time during which the Ashokan inscription was produced (Thapar 1957). His resulting ceramic typology cemented the deep settlement chronology present in the area immediately east of the Durgada Gudda outcrop, aligning activities in this area within a South Indian Neolithic cultural sequence, see Allchin (1954, 1960, 1963), Balasubramanya (1995), Foote (1916), Paddayya (1973) and Paddayya et al. (1995) for more details about Neolithic activities within the wider region. However, this report coupled with other publications mentioned above, raise additional questions regarding the complexity and temporal framing of human occupation in the wider landscape.

This understanding of South Indian prehistory is the historical background to an ongoing research project known as MARP, with whom the author conducted research fieldwork for this thesis. The foundations of MARP, its overall aims and findings to date are described in section 4.3.

4.3 The Maski Archaeological Research Project (MARP)

4.3.1 Introduction

MARP is an ongoing exploratory project co-ordinated at an international level. The co-directors of this project are Professor A. Bauer, formerly of Illinois, now of Stanford University, USA, Assistant Professor P. Johansen of McGill University, Canada and R. Gopal, former Director of the Department of Archaeology and Museums for the Government of Karnataka, India. LP/EHLTC project, see chapters two pp 42-43, of which all three personnel mentioned above were involved to a large degree.

Fieldwork for MARP is ongoing, with the stages of fieldwalking and one possible season of excavation, or at least artefact collection, completed at the time of writing this thesis. Preliminary surveys totalling one and a half months were carried out by A. Bauer and P. Johansen in 2010 and 2012. Preliminary surveys were followed up with three seasons of exploratory, systematic

fieldwalking survey, one in 2014 and two in 2015, totalling three months. It was during the fieldseasons of 2014 and 2015 that the bulk of data presented in this thesis was collected. There was also an additional field survey season in 2016 for one month and a season of excavation in 2017. Future fieldseasons are in the planning stage and publication will follow in due course.

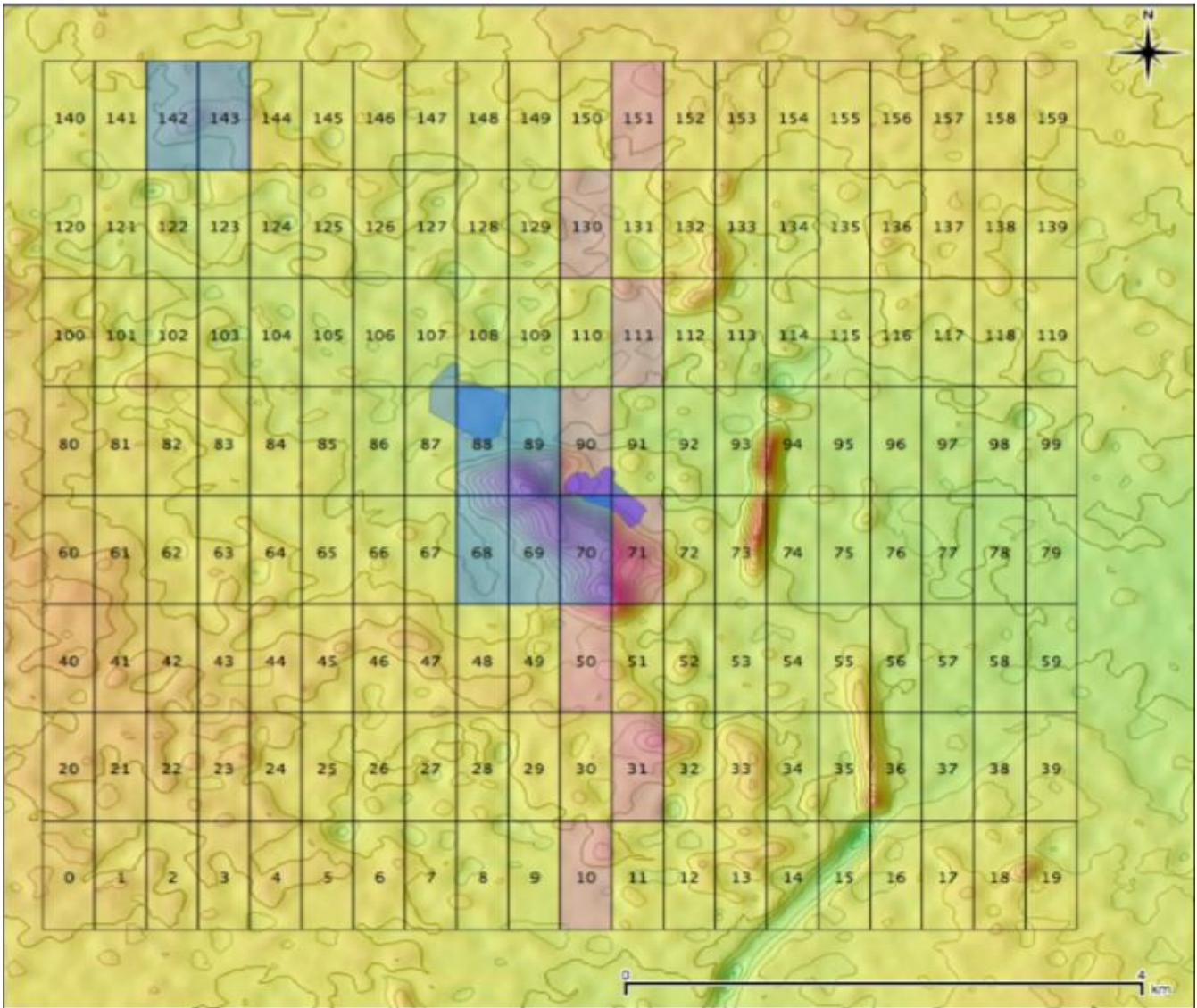
The primary aim of MARP is to investigate the extent of transformations to settlements and landuse practices from the South Indian Neolithic to the Medieval periods, based around and at the ancient settlement site of Maski. This includes settlement transformation in terms of site structure and organisation, shifts in landuse from agricultural to pastoral practices, evidence of metallurgical production and organisation and evidence for socio-political transformations (Johansen and Bauer 2013). An explicit interest in the South Indian Iron Age (1200 BC - 300BC) and the following transition to the Early Historic Period (300 BC - 300 AD) is acknowledged; this is traditionally a period of time which displays material remains of changes in landuse and settlement practices, hypothesised to be representative of growing social inequalities throughout South India (Johansen 2010, 2011; Johansen and Bauer 2013).

Methods implemented to investigate the extent of landscape transformation centres on a systematic transect pedestrian field survey of 64km², taking into account the site of the ancient Maski settlement and the Durgada Gudda outcrop. The systematic survey area also includes the surrounding landscape and a number of smaller present day villages, such as Venkatapura (two km north of Maski). The extent of the survey area is displayed below in map 4.1, with coloured blocks representing areas covered for respective fieldseasons. The survey area is divided into 160 blocks each 1km by 500m for easy traversing by a small pedestrian crew. Along with the implementation of a systematic transect survey, other methods include surface mapping of sites through GPS point collection, artefact collection and artefact attribute analysis. A systematic survey of the South Indian landscape was effectively demonstrated by A. Bauer in his 2007 regional survey around the Koppal district, which included the megalithic site of Hire Benakal (Bauer and Trivedi 2013). Traditionally, archaeological investigations pertaining to the complexity of the South Indian past have revolved around a village to village survey methodology. Although this method produces varied local archaeological interpretations, see for example

Namita Sugandhi's review of Mauryan imperial interaction in the southern Deccan (Sugandhi, 2008), it does not address the vast range of activities that people enact within the landscape on a larger scale outside of known settlement patterns.

MARP provided an ideal context for fieldwork to complement this thesis. Introductions were warmly made by Professor Sharada Srinivasan of NIAS, Bangalore and were followed by discussions and agreement of a complementary research agenda and sharing of information. It was agreed that the author of this thesis would be one member of a fieldwalking team, assisting in documenting archaeologically relevant sites in the Maski landscape using a designated systematic pedestrian transect survey method. A. Bauer and P. Johnsen already informed the author of the wealth of rock art they encountered during exploratory survey work in 2010 and 2012 and that a number of recorded sites were rock art sites. It was agreed that as a member of the field walking team for the 2014 and 2015 fieldseasons, the author would be able to document new rock art sites and record a selection of already identified sites in more detail.

Section 4.3.2 briefly discusses the outcomes of the 2010 and 2012 fieldseasons conducted by A. Bauer and P. Johansen. A description of the previous fieldseasons demonstrates how findings to date have initiated ideas about the Prehistoric – Early Historic socio-political transformations present within the landscape of Maski, providing a frame and a methodological direction for researching the rock art of this region.



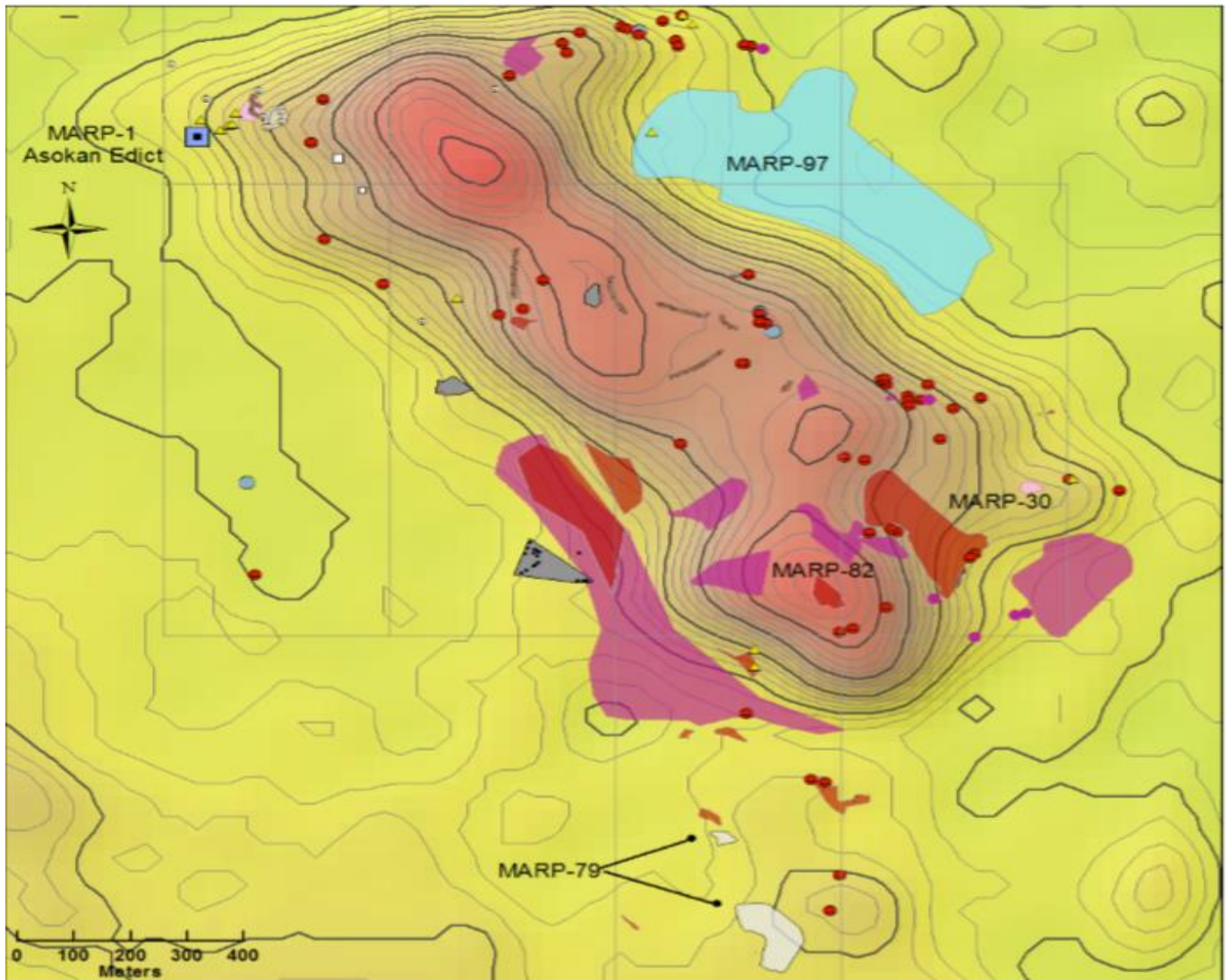
Map 4.1 Layout of the grid system used within the MARP survey region, showing judgemental blocks sampled in 2010 in blue and systematically surveyed blocks from 2012 in red (Johansen and Bauer 2013, Fig 1, accessed May 2014).

4.3.2. Methods and preliminary observations of the MARP project, 2010-2012

The 2010 fieldseason was conducted in November and focused on a judgemental pedestrian systematic survey of the Durgada Gudda outcrop (Blocks 69, 70 ,88, 89) and its immediate surroundings. This included the alluvial plains of the Maski nullah to the north of the outcrop (Blocks 88, 89), a small hillock to the north of the village of Venkatapura (Blocks 142, 143) and an area south west

of the small town of Maski. This pedestrian survey located 54 archaeological sites, including those mentioned in earlier reports from the Maski area, dating from the Neolithic to Medieval periods (Johansen pers. comm. 2014). These sites are associated with settlement, agro-pastoral land use practices, megalithic commemorative monuments and rock art sites (Johansen and Bauer, 2013). Map 4.1 p112 demonstrates the location and transect block numbers of surveyed areas during the 2010 season (blue) and the 2012 season (red).

In the 2012 season, a systematic, unaligned transect column was traversed, oriented north to south and incorporating blocks 10, 31, 50, 71, 90, 111, 130, 151. An additional 35 archaeological sites were documented and a selection of these were mapped with a total station (focusing on the Durgada Gudda outcrop), along with a limited and selective collection of surface artefacts. Map 4.2, p113 shows the spatial distribution of a number of archaeological features documented on the Durgada Gudda outcrop, including significant numbered sites. In addition to the types of sites recorded in 2010, the 2012 fieldseason recorded additional settlements, rock art sites, a large Iron Age cemetery (MARP 79), Iron Age field camps and hilltop settlements (MARP 30, 82), megaliths, medieval settlements and structures (Johansen and Bauer, 2013). Other features recorded throughout the duration of MARP include dense artefact scatters, iron working and gold ore processing localities, previously occupied rock shelters, modified rock pools, reservoirs, medieval temples and shrines, (Johansen and Bauer, 2013).



Map 4.2 The distribution of archaeological sites on and around the Durgada Gudda outcrop with shading of Iron Age settlements (red), Iron Age megalithic sites (grey), Early Historic settlements (light blue), Medieval settlement areas (purple), undated settlements (pink). Rock art sites are displayed with red circles and previously occupied rock shelters are displayed with yellow triangles (Johansen and Bauer 2013, Fig 3 accessed May 2014).

The Maski Archaeological Research project is ongoing and a number of publications are being prepared regarding the processes of socio-political transformations played out across the Maski landscape. There are also interesting preliminary observations to be made regarding Medieval agricultural and water management practices, which are beyond the scope of this chapter and thesis. This section aims to provide a brief summary of findings and current

areas of investigation for the MARP project generally, a more holistic range of results will follow in future publications. Due to the interim and ongoing nature of the MARP project, any discussions and conclusions drawn regarding the overall understanding of rock art in this region of South India as part of this thesis are more suggestive than definitive.

At this stage, it is worth noting the utility of conducting systematic pedestrian transect survey when investigating the dynamic, ephemeral movements of past populations throughout the Indian landscape. Systematic pedestrian transect survey implies an organised walk of a landscape according to predefined geospatial principles. This transect survey involved a small team spaced 20 metres apart, walking in an organised line through the landscape noting human archaeological activity as it was encountered, which could then be amalgamated off-site with geospatial mapping software.

Early results of the MARP project include the growth in size and numbers of Neolithic settlements and an expansion in the nature and complexity of Iron Age occupation areas. Recovered artefacts, dated to the South Indian Iron Age also appear to show an increase in spatial differentiation between settlements and a diversification in mortuary practices (Bauer and Johansen 2015; Johansen and Bauer 2015, 6-9). Early Historic period sites seem to be reduced in number but are larger in size, displayed by MARP 97 in map 4.2, suggesting practices of centralisation coherent with the political objectives of the Mauryan Empire (Johansen and Bauer 2013).

Preliminary results of the MARP project exemplify the incredible diversity of archaeological features present within the South Indian landscape that remain relatively under studied, with the potential to provide enlightening interpretations about the processes of socio-political transformation enacted in the past. Exploring the archaeological past of the South Indian landscape is an especially pressing concern at this point in time as the landscape around Maski is being subject to intensifying land clearance for agriculture and large scale quarrying for stone or sand resources. There is already considerable evidence for the dismantling and destruction of prehistoric megaliths, along with other archaeological features on the more hilly outcrops subject to dynamite blasting. The Iron Age - Historic cemetery (MARP 79) was being quarried out in 2010 and upon returning in 2014 is almost completely obliterated. It is important that

remaining archaeological features relating to the prehistoric and historic transitions within South India are recorded before they are physically lost.

Although at this point it is stressed that the results from the MARP project are preliminary, they point to exciting changes involved in settlement and social organisation, along with some limited patterns regarding the politics of interaction between the Mauryan state and the Early Historic communities in the Maski area (Johansen and Bauer, 2013). Whilst the 2010 and 2012 field surveys recorded the broad geographical locations of rock art sites and basic aspects of identification features, more detailed work on the specifics of rock art visual form, choices in rock type, creation technique and the spatial relationships between motifs, panels and archaeological features are yet to be assessed in detail. Section 4.4. provides an overview of historical rock art research conducted prior to the implementation of MARP and a summary of rock art findings by P. Johansen and A. Bauer prior to the author's involvement in the project in 2014. Section 4.5 then explains the author's involvement in MARP and presents the methodology for rock art documentation utilised in this thesis.

4.4 Previous descriptions of the rock art at Maski

Past investigations centred at Maski serve to highlight the diversity and continuity of prehistoric activities present in the area and provide a baseline chronology for specific activities, ranging from the Neolithic to the Medieval periods. The presence of rock art in the Maski region is introduced in passing in historic publications. In Thapar's report he mentions that "petroglyphs or rock bruising of an indeterminate age have been observed on the cyclopean boulders at some of these sites, most notably Bellamrayan Gudda, Chick Hesrur and Maski" (Thapar 1957, 11). Thapar acknowledges the existence of rock art, and more specifically petroglyphs at Maski, however he does not explicitly state the quantity or spread of motifs present in the vicinity.

Neumayer in his catalogue of rock art sites and motifs entitled *Lines on Stone; the prehistoric rock art of India*, includes Maski as an example rock art site and includes a handful of sample representations of rock art bruising found at Maski, identified as bulls, ploughs, banners and weapons (Neumayer 1993). He

also draws upon a single example of an observed petroglyph at Maski which he argues can be identified as a chariot (Neumayer 2014, 253).

Raymond and Bridget Allchin provide sample images of petroglyph bruising present in the Maski landscape, supplemented by comparative work at Piklihal, 27km west of Maski (Allchin 1960, 11–16; Allchin and Allchin 1994). These publications build upon initial observations of petroglyphs described in Allchin's thesis on prehistoric cultures in the Raichur district (Allchin 1954). The initial analyses by the Allchins is focused on bovine motifs from three panels, two from Piklihal and one from Maski (Allchin and Allchin 1994, 317), representing an extremely small sample size for a subsequent regionally accepted chronology. The majority of this analysis is also biased towards the rock bruising at the Neolithic site of Piklihal; it is implied that several forms of rock art bruising styles are represented at Maski, but not Piklihal (Allchin 1954, 247; Allchin and Allchin 1994, 320), raising questions about localised stylistic variation and the resulting cultural implications of visual differences identified in the rock art.

A selection of publications mentioned in pp 106-108 (Allchin 1960, 1954; Thapar 1957) are aimed at elucidating findings about prehistoric activity in South India from accepted methods of excavation and temporal characterisation of artefacts, rather than an explicit investigation of the rock art itself. The rock art is introduced in these publications to provide observational context for the contemporaneous processes of archaeological enquiry and is not itself the focus of investigation for archaeological evidence of prehistoric human activity. The remainder of the publications (Allchin and Allchin 1994; Neumayer 1993, 2014) utilise single motif forms as a way of providing thematic content for more general arguments about which categories of motifs appear in defined periods.

During the course of preliminary MARP field surveys in 2010 and 2012, 40 rock art sites were identified. They were predominantly located on rock slope and hilltop weathered terraces or ridges, their geographical location is displayed in map 4.2, p114. Common motif forms present at these sites included myriad bovine designs, along with other faunal motifs such as deer, elephants, felines and horses. A variety of anthropomorphic forms were also recorded, either singly or in groups with additional implements, tentatively suggested to be headdresses, along with weapons or pastoral switches. A number of geometric or abstracted designs were also recorded. The patination colouring present at many of these

sites suggested a prehistoric, Neolithic or Iron Age designation for a number of earlier motifs. See Appendix A for a feature summary table of site contexts and content recorded during the 2010 and 2012 fieldseasons, with full acknowledgement and appreciation in this reproduction of MARP data.

These rock art sites were situated within areas of dense archaeological activity which included grinding slicks, stone alignments and, settlement terraces. Observed temporally diagnostic artefacts were sparse at most rock art sites; there were sporadic occurrences of quartzite chips, some slag and lithic bladelets and occasional ceramic sherd scatters. Certain ceramic traditions are considered temporally diagnostic of different cultural periods. These are:

- Micaceous wares: coarse and visible pieces of mica contained within the ceramic matrix, indicative of Neolithic period pottery (Allchin, 1954; Thapar 1957, 12).
- Red – slip and polish (both fine and coarse): ceramics which have been coated with a red slip and, but not always, polished, possibly related to Iron Age contexts (Thapar 1957, 50).
- Black – slip and polish (both fine and coarse): ceramics which have been coated with a black slip and, but not always, polished, possibly related to Iron Age contexts (Thapar 1957, 50).
- Black and Red ware (BRW): a two tone pottery effect which can affect colouration at the base or rim of the ceramics and on internal or external surfaces, possibly related to Iron Age contexts (Sinopoli, 2007).
- Russet Coated Painted Ware (RCPW): ceramics are covered in a slip of ochre and designs (often geometric) are painted on before it is fired. This pottery technique is related to Early Historic contexts (Thapar 1957, 15).
- Grey – plain Medieval: standardised ceramic matrix in grey colour, little evidence of slip or polish. This pottery technique is related to Medieval contexts (Sinopoli 1993).

Ceramic sherd scatters were most dense at MARP 30, 85 and 99 where the following diagnostic sherds were identified, see MARP data for more detail and diagnostic functional forms.

- MARP 30: BRW (same side), BRW (in/out), red-slip/polish (coarse), black-slip/polish (fine), red-plain (fine), black-plain (coarse),
- MARP 85: black-plain (coarse), red-plain (coarse), grey-plain (medieval).
- MARP 99: red-slip/polish (fine), black-slip/polish (fine), red-crackle/slip.

These temporally diagnostic artefact scatters form an additional strand of evidence, combined with darkened patination colouration, that connect these rock art sites to prehistoric activity in the Maski landscape, possibly with Neolithic or Iron Age origins and further multi-period use into modern times. However, the order of rock art production within each site and between sites remains problematic.

Most of the rock art sites documented during the fieldseasons of 2010 and 2012 were identified as rock bruising sites in open air contexts. There were two instances of rock art produced using additive, painting techniques. They will not be discussed further in this thesis, which will focus solely on the rock bruising. The presence of rock painting/drawing sites serve to highlight the presence of multiple rock art traditions present in the Maski landscape over a considerable period of time which could be investigated in the future.

Whilst the MARP project incorporated an identification of rock art sites within its overall survey strategy, the project focuses on identifying and relating different forms of archaeological features and site types situated within the Maski landscape. Rock art sites, as just one type of archaeologically relevant activity, form one site type within the broader swathe of archaeological information gathered by the MARP project. The nature of the information gathered by the MARP project for rock art sites focused on landscape and contextual setting features, along with the identification of temporally diagnostic artefacts at surface level and broad descriptive accounts of motif categories.

The author's contribution to the MARP project was to provide in-depth, panel and motif level documentation of rock art motifs at recorded sites over the 2014 and 2015 fieldseasons, as this level of detailed documentation had not been attempted during the course of the MARP project to date. The author was to focus on the identification of motif variability of the same motif category within specific panels, along with a focus on relative temporal sequencing through

superimpositioning, where possible. During the fieldseasons of 2014 and 2015, rock art sites MARP numbers 18, 33, 39, 64 and 71, initially documented during 2010 and 2012, were revisited by the author as part of research for this thesis, along with a primary documentation of newly recorded sites. By combining contextual setting information from the MARP project and an explicit rock art recording agenda at panel and motif level, implemented by the author, it can be argued that the following methodology, presented in section 4.5 pp 122-132, incorporates a study of rock art within an accepted archaeological framework for investigating the archaeological past of South India.

4.4.1 Visualisation considerations for rock art documentation

Before detailing the methodology followed for rock art documentation at Maski, other methods utilised by rock art researchers, particularly in terms of visualising rock art, will be briefly mentioned. Those involved in rock art research are aware of the limitations imposed by rock art, in that it cannot be taken to laboratories for further investigation. An appropriate record of a rock art site detailing iconographic and contextual information is considered an adequate alternative in most circumstances. Additional information in the form of a phenomenological account of encountering and observing rock art sites are also employed by some researchers, and critically discussed in Chapter two. This section now details some traditional and digital methods used in rock art documentation projects.

Traditional Methods

Rock art has historically been recorded using conventional methods consisting of freehand sketches, line drawings, tracing and rubbings (Brady and Gunn 2012, 628). Documentation of motif form can range from unstandardised artistic sketches through to measured, systematic reproductions based upon perceived boundary delineation. Criticisms of traditional methods have focused on the lack of emphasis placed on the variable depth of engravings (Coles 2003), along with the potential level of damage caused by the rock art researcher in the documentation process through contact with the panel surface (Loendorf 2001). However, these methods are excessively time consuming and produce a record

that is inherently subjective, often proving to be irreplicable and inappropriately damaging (Plets et al. 2012, 143).

Digital Methods

As with many other disciplines, technological developments have benefitted rock art documentation exercises beyond manual methods, contributing to the enhanced archival potential of rock art in a global sense and improving the accuracy of documentation procedures. In the first instance, digitising archived imagery ensures an existing record of rock art panels in the event of their destruction. Digital recording of rock art panels ensures an alternative to invasive methods of rock art recording, mitigating damage to the surface of an already fragile form of past human activity.

Technological developments in digital visualisation procedures also contribute to the enhanced accuracy of motif documentation, see Rip (1983) for early examples of image processing of rock art in South Africa by computerised techniques. The experimental use of digital infra-red photography has yielded extra details of painted motifs found in shelters, where the pigment is degraded or invisible to the naked eye (Fredlund and Sundstrom 2007). In general advances in the technical capabilities of digital cameras and their increasing affordability have made them a cost-effective and rapid way of recording large quantities of rock art, also applicable to non-specialist environments (Bryan and Chandler 2008; Chandler et al. 2005, 2007).

The benefits of digital cameras for rapid and cost effective rock art recording are vast, however it still remains an imperfect means of visualisation due to the visual depth lost when rendering a three dimensional representation onto a two dimensional plane. There are theoretical implications regarding who is choosing what to photograph, from what angle, what frame and why, leading to the argument that a photograph should instead be called a “photowork,” as it forms an inbetween method of objective documentation combined with the bias of subjective choices (Shanks 1997, 83–84). Often rock art, especially petroglyphs may be more effectively visualised at certain times of day, or even certain times of year. Non contact recording of rock art utilising digital cameras may also produce artificial “artefacts” or motifs. In 1995 a spiral located at

Castlerigg in Cumbria was recorded using photographic and traditional methods. However, upon returning to the same vicinity it was unable to be located by either remote sensing or laser scanning technologies (Díaz-Andreu et al. 2006).

More recently, rock art projects are investing in means of photogrammetry (Lambers et al. 2007; Noya et al. 2015) and laser scanning techniques, recording with sub-millimetre accuracy (Eklund and Fowles 2003; Lymer 2015) to increase the visual accuracy of rock art recording and to assess the extent of rock art erosion in specific areas (Barnett et al. 2005). This has extended to utilising unmanned aerial survey to record rock art in inaccessible locations (Berquist et al. 2018) and the creation of replica rock art sites using virtual reality (Baker 2018). Although these methods are a desirable avenue to pursue in terms of rock art documentation and visualisation practices, they are not available to all on a practical level, where fieldwork costs, time and terrain impact on subsequent research methodologies.

It still remains beneficial to utilise digital cameras in the recording of rock art, acknowledging that photographic recording has a subjective bias. Additionally, there are also meteorological and climatic variables to consider in each recording context which will affect documentary visualisation of rock art motifs and panels. Furthermore, once initial recording is completed, it is worth conducting off-site image enhancement analysis, both to assess the quality of primary fieldwork data collection and to explore further visualisation potentialities, see Chapter Seven.

4.5. A Methodology for Documenting Rock Art At Maski

It is suffice to reinforce the statement that the rock art of Maski has not been examined to the same extent as can be said for other archaeological features in the landscape. Therefore, an approach of rock art survey incorporated within the archaeological framework of MARP has the potential to reveal observations about the quantity and spatial relationships of rock art sites within their locational settings. One note of caution to mention is the uncertainty of appropriate dating approaches to determine the ages of rock art motifs. This is not a problem specific to the region of Maski, but one that is uncomfortably

prominent regarding rock art research on a global level and will be discussed in more detail in later analysis chapters.

Following on from a contextual background summarising past and current research projects centred around the Maski landscape, this chapter now describes methods used to document rock art at Maski. The overarching aim of fieldwork was to document rock art sites, in order to assess the extent of rock art production in the landscape and what that might mean for the significance of rock art production as a tradition within South Indian prehistory. A variety of information was collected at different scales, following rock art documentation methods at Mont Bego, advocated by Christopher Chippendale (2004) from a context, panel and motif scale of documentation.

Initially landscape settings and other natural or human features around and including the rock art site are documented, to provide contextual information at a macro, or inter-site scale. This utilised contextual setting information provided within the MARP project. At a smaller, or intra-site scale, the relationships between panels are described, this also includes how motifs relate to each other across a single panel. At a still smaller scale, or micro level, features of the motifs themselves are recorded, identifying creation technique, motif form and observational notes on rock varnish and superimposition, along with any other markings. The methodology for recording elements of rock art sites relating to panel and motif scales form the author's contribution to both the MARP project and the primary research presented in this thesis.

By recording relational features connected to rock art from a macro to micro scale, the author hoped to build a logic of insightful observations about patterns inherent in the rock art in the regional and local landscapes at Maski. This included distributional patterns of panel and motif accumulation and spatial associations with archaeological features at a macro level, followed by the visual motif corpus of designated sites at a smaller scale. Finally, an investigation of how specific panels were constituted would make up the smallest scale of documentation. Utilising multiple scales of rock art documentation was thought beneficial for identifying different elements of past human practice, focusing on spatially associated archaeological activity and patterns in the choice of motif production.

An additional consideration to address is a justification of motif identification procedures utilised throughout the course of this research. Preliminary ideas of possible motif forms encountered at a regional level were taken from previously published works, including Allchin (1954), Allchin and Allchin (1994), Boivin (2004a) and Chandramouli (2012, 2014), already discussed in detail in Chapter three on current understanding of rock art in South India. Further knowledge about generally identified rock art motifs was gathered from discussions with A. Bauer and P. Johansen based upon their extensive field experience in the South Indian landscape. Procedures were implemented within this research methodology to acknowledge the uncertainty of motif identification, which is detailed in section 4.5, pp 126-128.

In addressing how a study of rock art can be incorporated into archaeological understandings of South Indian prehistory, the following questions were devised, focusing on collecting specific types of information.

1. What does the rock art at Maski consist of? Record rock art at each surveyed site from a variety of scales, incorporating elements of motif production, motif identification, panel condition and landscape setting.
2. Can the rock art at Maski be assigned to an archaeological time frame? Attempt to establish a form of temporal control, which may relate to degrees of patination and superimposition sequencing, in addition to a critical documentation of stylistic attributes.
3. Is the rock art at Maski spatially related to other activities? Evaluate human activity, both ancient and modern within spatial proximity of rock art sites.
4. Are there any conservation concerns for the rock art at Maski? Observe land use practices that cause concern for the continued survival of rock art sites in the region.

In addition, the rock art documentation methodology presented in this thesis is integrated into practical considerations inherent to the methodology composed by P. Johansen and A. Bauer for the MARP fieldseasons. Implementing a pedestrian transect survey with a high percentage coverage meant that rock art documentation needed to be conducted rapidly. Necessary equipment needed to be lightweight when considering the strenuous nature of the survey, the hot environmental conditions and harsh, hilly terrain that makes

up the landscape around Maski. In addition, recording methodologies should be easy to replicate and cost effective. In order to accomplish the required documentation aims for fieldwork in 2014/2015 and to ensure that research converged with the stated goals of the MARP project, the following techniques were utilised to obtain the required data for later analysis. Data gathering techniques can be divided into two areas. One area encompasses the compression of attribute data into manageable field forms with complementary spatial recording. The other area focuses on photography methodology, capturing visually significant aspects of rock art panels and motifs, along with visual impressions of rock art contexts.

Rock Art Site Forms

There are two types of fieldwork documentation forms utilised in recording each rock art site. An initial site form provides an overview of the entirety of the rock art site. It records contextual attributes such as site location, predominant geologies, natural landscape placement and associated anthropogenic activity. Additionally, it also provides approximate numbers of panels and motifs identified during the course of fieldwork.

Each panel located within each designated rock art site is recorded on a separate 'Rock Art Panel' form which records descriptive aspects of panel condition, motif placement, motif identification and motif spatial relationships at an intra-panel level. Both rock art site and rock art panel forms used in this thesis are adapted from examples of rock art recording forms that have been used previously in rock art documentation projects, such as the Northumberland and Durham Rock Art Pilot Project (NADRAP, accessed April 2014), along with published form standards in *'An Introduction to Rock Art Research'* (Whitley, 2011). Site based information, such as site locations and identifiers, site types, associated ceramics, geomorphological considerations and administrative details such as sketches and numbers of photographs were informed by existing MARP project forms and Whitley (2011). Specific panel information regarding dimensions, inclination, natural or anthropogenic threats to a panel surface, along with details of sketches and motif identification was adjusted from NADRAP

forms. The layout of the field forms utilised in this thesis was adjusted from Whitley (2011) to minimise quantities of paper carried during fieldwork.

Example forms, figs 4.2a, 4.2b, are provided on pp 129-130. A justification of image categorisation procedures are also provided on pp 126-128. These rock art site and panel forms were modified between the 2014 and 2015 fieldseasons, to provide more detail for motif identification and motif description. The decision to modify the recording forms was based upon observational proportions of motifs (which predominantly focused on bovines) in the 2014 season. Inclusion of a stylistic attribute table, see table 4.1 on p131, provided a means to rapidly record multiple stylistic attributes for identifiable bovine motifs.

The site forms used in this research project are based exclusively on rock art sites and completed examples of rock art site and panel forms can be found in Appendix C. These were devised by the author as means of keeping a distinct record of rock art sites, with separate forms for individual panels, so the author was able to collect distinct information from the MARP project. These forms were evaluated by P. Johansen of the MARP project before use. The MARP project have a separate set of forms to record all other archaeological features, including rock art sites. These site forms are available to all included within the MARP project, providing additional spatial and temporal attribute information. Observational field notebooks were also utilised as supplementary material to the rock art site, panel and MARP field forms.

Motif Identification

Motifs were identified and categorised in a range of specific through to general categories, following discussed consensus by field survey participants. If a motif demonstrated clear and specifically recognisable attributes it could be given a more specific designation, such as bovine or equine. Motifs unable to be determined for reasons of clarity or disagreement where given more general identification categories. For example, if a motif looked like a faunal representation of livestock then it was classed as an ungulate rather than being forced into 'sheep' or 'goat' categories. At a still more general level, unidentifiable markings produced using the same bruising technique were given an indeterminate categorisation.

Additionally, more enigmatic bruising which can be visually recognised by researchers such as spirals or repeated lines of dots, but not coherently interpreted, are recorded as abstracted or geometric designs. Finally, motifs that could be identified as representations of humans were given the designation of anthropomorphs, rather than trying to identify sex or gender. Descriptive detail was also included regarding motifs engaged in activities or with additional implements. The anthropomorphic category of motifs form a diverse and interesting component of the rock art at Maski, which is discussed further in Chapter eight regarding variable images of anthropomorphic motifs portrayed with faunal and abstracted motifs.

Put more explicitly, the following categories of motifs identified at Maski had to present the following distinguishing attributes, influenced by existing academic literature and current in-field research experience, before they could be confidently categorised during fieldwork. Following Deacon (2010), it is acknowledged that rock art motif description already represents a preliminary interpretative stage in rock art documentation projects. As such, some attributes in the following motif descriptions are stated with a series of brackets around them, as stated in Officer (1991) to indicate that an element of image interpretation has already taken place during the documentation stage. This was deemed to be a more accessible approach to rock art documentation than the “knob and blob” approach advocated in Clegg (1978), which breaks motifs down to a series of single abstracted elements, further obstructing the rock art documentation process. Some motifs could be identified to a species degree of detail, whilst others were documented in broader conceptual categories.

- Bovine: definable (horns) and a (hump) along the torso of the motif.
- Bull: definable (genitalia) markings in addition to definable (horns) and (hump) along the torso of the motif.
- Equine: definition of detail around the upper (neck) indicating (reins), also in combination with an identified anthropomorphic motif along the top of the torso. There is also sometimes the addition of a (tail).
- Ungulate: identifiable detail of torso and four limb elements emanating from the same side of the central torso attribute, along with a sub rectangular shape

at one end of the central torso attribute (head), and a possible extra line at the other end (tail).

- Zoomorph: exhibit the same attributes as an ungulate, but less defined motif morphology or attribute detail.
- Deer: identifiable detail with ungulate motif, with a thin length of motif morphology (neck) before culminating in a sub-circular end (head). The (head) also has linear attribute extensions (horns).
- Serpent: a linear curved motif morphology with circular extension at one end (head) and forked linear extension at the extremity of the motif (tongue).
- Elephant: identifiable (trunk) and (tusk) attributes.
- Feline: striped detail within the motif outline.
- Bird: evidence of pointed protrusion (beak) extending from circular end (head) and identification of (wings) on side of torso.
- Anthropomorph: a central motif portion with four intersecting linear elements (limbs) and a circular-sub circular end (head). Along with the possibility of additional motif morphology in the form of represented implements.
- Abstract: sequences of clearly definable motif attributes, recognisable as bounded motifs. This category includes motifs which look like; concentric circles, subcircular or leaf shaped outlines, spirals, trident forms, grids and possible 'shiva lings.'
- Indeterminate: unclear motif boundaries and indistinguishable representation.

Rock Art “Site” Record MARP Season (Example Form)

Site Identification.....

Waypoints.....

Page..... of

1. Site Location: (GPS co-ordinates, elevation, area size m²).....
2. Site Type: (eg: inselberg ridge, rockshelter).....
3. Geology.....
4. Rock Art Technique production(s).....
5. Associated Natural Features
-
6. Associated anthropogenic features.....
-
7. Associated Artefacts
-
8. Number of Panels (and method of determination).....
9. Number of motifs (and method of determination).....
10. Integrity/Condition (consider evidence for natural deterioration).....
-
-
11. Vandalism (consider density, type, specify location).....
-
12. Current Land use.....
13. Documentation Method(s).....
14. Additional Comments (eg, styles present, observable threats to rock art).....
-
15. Any sketches, maps attached?.....
16. Photo log sheet No's.....
17. Recorder.....
18. Date.....

Rock Art Panel Record MARP Season (Example Form)

Site Identification.....

Waypoints.....

1. Panel No. of
2. Panel Dimensions (cm).....
3. Geology of Panel.....
4. Orientation (GPS co-ordinates and Compass bearing).....
5. Panel type (Landscape, structural, portable).....
6. Condition of panel surface/ Vandalism.....
7. No.Motifs and Technique:
Cupules..... *Pecking*.....
Scratching..... *Incising*.....
Paintings..... *Drawing*.....
8. Number of visually Identified motifs and Dimensions. Include sketches.

9. Relative positioning on rock face.....
- 10.Any obvious patterns or arrangements.....
.....
- 11.Any other possible markings.....
.....
- 12.Superimpositioning.....
.....
- 13.Observational Location Features (associated anthropogenic activity and orientation).....
- 14.Other Comments.....
- 15.Photo Log Sheet Number.....
- 16.Recorder.....
- 17.Date.....

Fig 4.2a, p129 Example rock art site recording form. Fig 4.2b, p130 Example rock art panel recording form (created by author).

Table 4.1 Table displaying stylistic attributes for bovine motifs used during 2015 seasons of fieldwork.

Motif Identification	Bull/ Bovine or other	Patination coding 1-5	Horns: V shaped or parallel	Outline or infill	Individual limbs or conjoined	Thick or thin body	Hump positioned correctly	Photo No.

An additional element to these fieldwork forms was the inclusion of a patination coding procedure, assigning a value of one through to five (1-5), with one being the lightest shade of bruising surface and five representing the darkest shade. A study of patination coding has been convincingly used to assign relative ages to petroglyphs during rock art documentation projects in Africa (Barnett and Guagnin 2014; Butzer et al. 1979; Campbell and Coulson 1998). As demonstrated in Chapter three p99 and p101, the relative shade of bruising has been used as an indicator of age for petroglyphs in Northern Karnataka. By assigning a numerical category to motif patination, an attempt was made to standardise patination recording. It is acknowledged this is general means of distinguishing patination colour. In future research, a more widely accepted means of assigning colour variants to motifs could be implemented, such as a Munsell soil chart. This would act as a proxy for assigning colour values to geological surfaces, suitable for petroglyphs. In general, the recording of patination shades only served to increase uncertainty about its reliability for dating rock art at Maski, described in more detail in Chapter five, pp 137-138 and Chapter eight, pp 315-316.

GPS Plotting

The position of rock art sites was plotted utilising Garmin Etrex handheld devices (Etrex 10, 20 and 30 models) through a series of waypoints. Each plotted waypoint is accurate to within a range of 3-5 metres of an absolute geographical point, dependent on satellite coverage. They are useful for recording general locations of rock art sites and broad spatial relationships between rock art sites and other anthropogenic features. The accuracy of the Garmin Etrex devices can also be used to plot accumulations of rock art motifs and panels, but are unable to reliably plot the absolute location or orientation of specific panels. They are a reliable device for plotting a large quantity of spatial data in a portable way which can be digitally analysed off-site. They are also mechanically straightforward to instruct others to use in a constricted time frame. The results of the GPS data is displayed in Chapter six and used to demonstrate patterns of rock art placement within the Maski landscape. All waypoints of rock art sites and other archaeological features were collected as part of the MARP project as a whole. The author took additional waypoints for rock art sites MARP 39, 71 and 210.

Photography

The photographic methods implemented during research fieldwork were designed to capture a level of detail regarding visual differences in rock art motifs, along with intra- and inter-site panel relationships. These photographs are analysed in more detail in Chapter seven which focuses on the off-site manipulation of digital photographs using the computer software programme DStretch. For the fieldseason of 2014, a Nikon D60 10.2 mega-pixel SLR camera was deemed suitable and was coupled with a standard focus lens as opposed to a macro or wide angled lens. The choice of lens was used to reduce image distortion as much as possible. Three practise sessions were conducted with this equipment at Exeter University in different light and weather conditions, assessing the quality of detail that could be delivered when photographing different rock surfaces and rock art panels prior to the 2014 fieldseason. These practise sessions were helpful in assessing camera capabilities, along with aperture priorities used to visually capture the extent of motifs. The Nikon D60

SLR was utilised for fieldseasons in 2014 and March 2015. A different camera was utilised for the fieldseason in June to July 2015, a Canon Powershot SX520 HS. This was due to the unavailability of the Nikon D60 SLR, however this alternative camera was also suitable for capturing motif and panel level changes.

Field conditions

Three days of fieldwork were curtailed towards the end of the 2014 fieldseason by the start of the monsoon rains. The start of the monsoon also affected two additional fieldwork days towards the end of the 2015 June-July fieldseason. The heavy rains made transect survey difficult to perform and visibility problematic. It also meant that site recording and adequate photography were impossible.

A further observation was noted about the visibility of rock art motifs in different weather and lighting conditions. Rock bruising which were visible in dry conditions were no longer visible to the naked eye, or through means of photography, after a period of rain. The onsite visualisation and photography of rock art motifs were also light dependent on a daily basis. Rock art motifs were best recorded visually from 9am until 5pm. After 5pm, the angle of the sunlight in relation to rock art panels was too acute for adequate motif capture by photographic means.

4.6. Conclusion

This chapter has outlined historical research at Maski and current developments exemplified in the MARP project in order to frame the subject matter of this thesis. It has critically analysed methodological procedures used to record rock art and has described the methodology used during fieldwork for this thesis. Overall, it has presented a means of incorporating rock art research into existing archaeological research projects, where it can provide an additional strand of evidence regarding the complexities of prehistoric human-landscape interactions in South India. The next chapters summarise results from fieldwork conducted in 2014 and 2015, followed by analyses of landscape contexts and intra-site motif specific considerations.