

CHAPTER **I**

Research Issues and New Directions: One Decade into the New Millennium

Jo McDonald and Peter Veth

This *Companion to Rock Art* has been inspired by an efflorescence in rock art studies over the past decade. Advances in critical thinking, the explicit pursuit of methodological rigor, and improved technological capacity in the digital age have seen rock art studies move to center stage in a number of archaeological and, indeed, broader social contexts. Our mandate for this volume has been to define new research issues and directions and critique existing research paradigms, and we have explicitly sought theoretically pluralist approaches.

It has been more than a decade since an edited volume has explored various theoretical approaches or focused on technical and scientific advances (e.g., Conkey et al. 1997; Chippindale and Taçon 1998; Helskog 2001; Whitley 2001). It is similarly some time since any anthology has explored particular rock art thematics, such as landscapes (David and Wilson 2002; Chippindale and Nash 2004) or gender (Gero and Conkey 1991; Casey et al. 1998). There have been more recent collected works that have focused on the rock art of specific regions or on a particular topic (e.g., Loendorf et al. 2005; Bahn 2010; Goldhahn et al. 2010), but none in the past decade that has aimed to provide a comprehensive overview of different approaches from around the world and from a range of theoretical perspectives.

The resurgence in rock art research around the world has been spurred by national funding cycles, advances in technology, and, in many cases, the serendipitous coalition of different personalities and projects. For instance, in Australasia the Australian Research Council (ARC) has funded a number of major projects around the region

– to the tune of several million dollars – over the past five years. The Picturing Change Project and the Canning Stock Route Project (see Chapters 24 and 31) are two such examples, and there are other ARC projects in the region where rock art has similarly received a significant injection of funds and research interest (for example, the Kimberley, East Timor, and Sulawesi). This is the first major national funding cycle explicitly targeting rock art since the late seventies, when the (then) Australian Institute of Aboriginal Studies and the Australian Heritage Commission funded a number of rock art research and rock art conservation projects (e.g., Ucko 1977; Rosenfeld 1985).

Rock art has recently been central to some of the greatest professional and ethical management conundrums of our time. At Foz Côa (Portugal) and Siega Verde (Spain) outdoor Paleolithic rock art was saved from the construction of a dam by an international campaign and subsequent World Heritage listing (www.arte-coa.pt, accessed March 2012). The discovery of open-air Paleolithic art created quite a stir, and a range of techniques was used to validate the assessment of this art's significance; conversely, science was invoked to contradict the conclusions that were initially founded on stylistic analyses and interpretations (see Batarda Fernandes 2009; Bednarik 2009). Archaeological excavation has since demonstrated that open-air occupation deposits date to in excess of 30,000 years, providing a secondary line of evidence for the significant age of this rock art.

Similarly, protecting and managing the petroglyphs on the Dampier Archipelago (Murujuga) in Australia has inspired professional action from archaeologists and rock art associations alike in the face of continuing pressure from industrial development (Bednarik 2006; McDonald and Veth 2009). There is also a vibrant grassroots campaign (www.standupfortheburrup.com, accessed March 2012) which continues to agitate for increased protection and appropriate government recognition of this significant place (Figure 1.1). This rock art province has been National Heritage listed and is currently being assessed for its “outstanding universal values” as part of the World Heritage nomination process. More recently, there has been a push by individuals and various benefactor groups (see, for example, www.protectaustriasspirit.com.au, accessed March 2012, and www.kimberleyfoundation.com, accessed March 2012) to seek public and corporate support for further research into Australian rock art.

Rock art is taught as a mainstream offering in undergraduate and graduate archaeology and cultural heritage programs throughout the world. In Australia, over the past two years, three rock art research centers have been created: at the University of Western Australia, the Australian National University, and Griffith University. In America, the SHUMLA School, in Comstock, Texas, is actively engaged in national and international research projects, education, and community outreach programs, taking annual field schools in recording techniques; and across Europe (Wales, Italy, and Spain, to name a few) there are annual field schools for rock art enthusiasts most of which can be accessed online.

The time was ripe for the conception of this volume. Rock art research has gained a level of theoretical maturity and disciplinary recognition that allows us to anticipate that the upsurge in good research will continue, while public interest in, and recognition of, rock art as a universal insight into humanity will only increase as more research is published.



Figure 1.1 “Stand Up for the Burrup”: roll call at the Society for American Archaeology 2011 Conference in Sacramento (photo: Sue Smalldon).

RATIONALE FOR THIS VOLUME AND ITS STRUCTURE

The structure of the volume is tailored to the teaching of the next generation of rock art researchers. It has been designed to slot into a 13-week semester cycle, with 11 thematic sections, comprising a total of 37 chapters. This should allow for an orientation and introductory session on research issues and new directions, as outlined here and so eloquently and ably by Professor Meg Conkey in the Foreword, followed by 11 weeks based on each theme, with two to four chapters per week. The final week is thus allocated to a summation of the themes covered and exams or final essays. We have aimed to direct the reader through the full gamut of research possibilities in rock art from overtly theoretical stances to those that are more regional, methodological, technical, or applied in focus. Overall – as with all grounded work driven by behaviorally oriented inquiry – most chapters aim toward a robust integration of data and problematics.

For this volume, the solicited constellations of chapters around the 11 core themes cover current and new directions in rock art research. These themes fall broadly into the general descriptors of: explanatory frameworks; inscribed landscapes and seascapes; engendered, hermeneutic, and anthropological approaches; regional and contextualized studies; rock art as identity and as mediation between different

social groups; the social and political context of management; and methodological advances in dating and digital heritage.

This volume provides a fresh look at rock art research one decade into the new millennium. The contributors include a number of well-known authorities who were invited to reflect on perceived orthodoxies in their own and other people's research (for example, the uses and abuses of shamanism), but we have also targeted a number of earlier-career scholars. Significant departures in this volume include not only the explicit move toward archaeological mainstream analyses in many chapters, but also the collaborations that so many of these chapters represent. This is apparent in both the range and scope of many described case studies, and also in the number of co-authored chapters. Only half of the contributions to this volume are sole authored, compared to the volume edited by Chippindale and Taçon (1998, where only three of 16 chapters are co-authored) or that edited by Whitley (2011; where only two of 24 chapters are co-authored). There also seems to have been a shift in the gender balance of rock art researchers over the past decade. Twenty-three of the 38 offerings here are authored or co-authored by women from both hemispheres: *contra* Chippindale and Taçon (1998), where only six of the 22 authors are female, or Whitley (2011) where only four of the 25 authors are women.

We were interested in showcasing inter-regional and global comparative studies, as well as ensuring that there was a good quotient of scholars from non-English-speaking countries and study areas: 11 of the chapters are written by authors whose first languages are – and most of their publications have appeared in – French, Spanish, Swedish, or Polish (we are very grateful to Sebastien Lacombe and Kathleen Sterling for translating Chapter 21 into English). We were also interested in profiling how applied rock art research has become more embedded within broader discourses of heritage management: there are several chapters which look at World Heritage listing as a management regime, and still others that investigate how rock art management might mesh with national or Indigenous goals and a range of management strategies.

RESEARCH ISSUES AND NEW DIRECTIONS

There is a surfeit of research agendas now available for rock art studies worldwide. The themes canvassed throughout the volume demonstrate that these are (or can be) approached in a systematic, critical, and highly informed manner. Many of the polarities inherent in previous approaches (for example, informed versus formal; symbolic versus functional; ritual versus mundane; gendered versus ungendered) are now being unpacked in more nuanced analyses. These approaches are arguably based on a more thorough understanding of where archaeology fits between hard science and the humanities, but there is also more critical (and self-critical) use of ethnographic and ethnohistorical sources in ways that avoid analogic and teleological traps. A number of chapters demonstrate the use of pattern recognition and deploy statistical approaches in more sophisticated ways and ask questions at multiple scales. The continued refinements in dating technology and image enhancement set new benchmarks in how we approach the very basis of making sense of rock art. What are we looking at? How old is it? How do we record it?

The fact that rock art can signal information at many levels, and has agency between culture groups in the same time and space and intergenerationally, appears as a recurrent theme; as does its role in ideational, sensory, social organizational, religious, hierarchical, territorial, and economic domains. The information content of rock art, when viewed within its larger archaeological or anthropological context, can inform on multiple aspects of past behavioral systems; and we think this volume demonstrates that this is a watershed time in terms of rock art's emergence into the archaeological mainstream: Meg Conkey's comments in the Foreword reinforce this point.

It is clear that the division, defined so persuasively by Chippindale and Taçon (1998), between "informed" and "formal" approaches has in many cases become blurred as practitioners working within these frameworks move toward an approach which sees the contextualization of rock art as the primary goal. Rock art may be informed by ethnography, or it may require formal analysis to elucidate patterning where we have no analogy or ethnographic reference, but our hopes of understanding the rock art in any fundamental sense must be based on an understanding of its context. This is not a new revelation (Conkey 1987), but it is an insight which now has very different meaning when rock art is perceived as one of many lines of evidence in a collaborative project, and rock art researchers stop working in isolation and take a more explicitly archaeological approach. Of course, improvements in dating techniques, and the fact that more concrete conclusions can be made about art's place in an archaeological sequence, has reduced the skepticism that mainstream archaeologists may have previously felt in their dismissal of rock art as having little scientific value.

As we now profile some of the key research themes to emerge from this edited volume, it is clear that many of the authors could have been asked to produce their chapters in more than one of the selected research themes. This is further demonstration of the more evolved approaches that many rock art researchers are applying to their studies.

Phenomenology

Phenomenology involves exploring the ways in which rock art was perceived, produced, positioned, and added to through time. It explores the original intention of rock art's production (without presuming to know the intention of the artist), and considers the impact it might have had on observers as they witnessed its production or engaged with it more broadly by experiencing sites and their landscape settings. Rock art in its landscape context is explicitly explored here in a number of chapters: in ceremonial arenas in the Caribbean; in a range of topographic settings in the Andes; and positioned for viewing by a limited audience in megalithic Europe. Some of these studies demonstrate varying degrees of formal trait analysis, while others are more concerned with phenomenological approaches (*sensu* Tilley 1994).

Iain Davidson (Chapter 4) explores differences between late Pleistocene rock art from western Europe and the east Mediterranean. By examining assemblage variability in detail and exploring robust and plausible modeling, he concludes that ideological differences are at center stage. Variation in motif theme, and the relationships amongst these, and in the positioning of images within sites, indicate patterning in the rock art from these two regions which overall reflects the emergence of different ideologies in the Pleistocene at either end of the Mediterranean.

Inscribed landscapes – and seascapes (Chapter 5) – develop the phenomenological approach to consider the ways in which different social groups inscribe meaning and mark places across space and through time. The concept of “received heritage” finds expression in chapters from diverse areas (the Pacific, the Western Desert, and the Caribbean), but is also implicit in a number of other chapter (based on the Andes, Patagonia, and the Sydney Basin). The “meanings” that groups ascribe in these different case studies come from a variety of sources, including informed and formal approaches, Neo-Marxism, and structuration theory. The recurrent observation made is that both wide and narrow graphic vocabularies are found in very patterned ways and these have served as important signaling devices. The purpose may have been to create group cohesion and identity, to manipulate land and seascapes through ritual, to delineate new territories based on emerging elites, or to transform the landscape into places of activity and/or meaning (see Chapter 7 where, interestingly, rock is moved to create the place, then transformed by the production of rock art). There is no question that an inclusive landscape approach – which incorporates both synchronic and diachronic perspectives – provides a meaningful and varied approach to rock art studies and broader current archaeological discourse (e.g., David and Thomas 2009).

Phenomenological and neurological approaches are openly addressed in chapters focused on the issue and consequences of altered states of consciousness. J. David Lewis-Williams (Chapter 2) provides a review of his extensive publications on shamanism, suggesting that there has been misinterpretation and misuse of the concept and pointing out that this should merely be considered as one possible outcome of interpretative research. He stresses that many rock art assemblages are not shamanistic in their origin. Interestingly, Lewis-Williams contends that Thomas Dowson’s (2009) view that the shamanic elements in San rock art are simply part of a wider, more inclusive animistic ontology, does not invalidate the fact that multiple features and motifs of San rock art point directly to ethnographically attested features of San shamanic practices and experiences. He contends that animism is a broad *context* in which shamanism may, or may not, exist.

While early analyses interpreted the rock art of the Lower Pecos Canyonlands as shamanistic, Carolyn E. Boyd (Chapter 3) introduces a variety of roles for Lower Pecos anthropomorphs, beyond that of shamans. Through a detailed deconstruction of these compositionally intricate panels, she infers meaning from the rock art for which there is no direct ethnographic information. She argues cogently that the interrelationships between the rock art of deer, impaled dots, and anthropomorphs with dotted antler tines portray a metaphorical relationship between deer and peyote. She concludes that the anthropomorphic figures can be perceived as participants in the Huichol peyote pilgrimage, and that they can represent multiple concepts simultaneously: shaman, ancestor, deity, and mythic character.

Neurological factors are deduced from entopic phenomena in rock art and other iconography (for example, drums and their decoration in Siberia) from locales where the ethnographic context allows this kind of interpretation. Andrzej Rozwadowski (Chapter 26) looks at how Siberian shamanism, as practiced today, has mobilized prehistoric rock art. Siberian ethnography is used in mid-range theory to predict for trance groups and human–animal juxtapositions with a description of how shamanic rock art can be mobilized into indigenous and national identities. This is a theme

identified by others (e.g., Howard Morphy in Chapter 17) regarding the recursive nature of rock art and modern art productions. The vibrant shamanic revival in southern Siberia (outlined by Rozwadowski) is developing as a focus for national identity within the Russian Federation. This chapter serves to remind us of the social responsibility that befalls the rock art researcher, as with all archaeologists: rock art (along with heritage more generally) and its audience is in a process of forging meaning and memories, which can provide capital to contemporary peoples as well as being used to marginalize others (e.g., Smith 2010; see Valerie Magar in Chapter 30).

Hermeneutics and meaning

The social context of the production of art and its meaning is critiqued by Oscar Moro Abadía and Manuel R. González Morales (Chapter 15). These authors argue persuasively that, although we brought unbridled biases to understandings of “deep-time” assemblages of Pleistocene art during the twentieth century, these can be overcome by adopting an explicitly reflexive approach. Hermeneutics does not aspire to a set of mechanically applied rules for the interpretation of Pleistocene rock art images, but rather a hermeneutic approach seeks to analyze under what conditions an understanding of such images is possible. The main objective of this approach is to ensure that rock art researchers are fully aware of prejudices governing their interpretations. No single *meaning* can be accorded to the myriad Pleistocene rock art images, but a diversity of *meanings* can be inferred depending on context (Conkey 1987:414–415).

Formal methods, style, aesthetics, and context

Formal methods are given new life through pattern recognition and the associative strengths of multivariate statistical analyses. Alice Tratebas (Chapter 9) examines the possibility of early connections between rock art in North America and Siberia. The identification and quantification of an early rock art tradition during the “colonizing” phase of the Americas is exciting and significant. Tratebas explores stylistic similarities within and between the Early Hunting petroglyphs of Wyoming. Principal components analysis is used to define regional and inter-regional levels of stylistic homogeneity. By comparing the earliest rock art from Wyoming with that from the Middle Yenesei River area in Siberia, she makes a firm case for several possible areas of origin in Asia for the oldest rock art styles in North America. Indeed, she argues that the very variety of these origins may account for some of the diversity in North American rock art traditions. Tratebas’s experimental work with varnish microlamination (VML) has demonstrated that the earliest and more recent phases of Early Hunting art date to the Pleistocene (Tratebas 2010; and see David S. Whitley in Chapter 34 of this volume). This, combined with late Pleistocene portable rock art at the Gault site in Texas, along with burgeoning cases for Pleistocene occupation and rock art production in South America, may well extend the accepted dates for migration into the Americas. Given that new and early dates for rock art are now being obtained, rock art is thus implicated as a colonizing repertoire (see Veth et al. 2011) which will allow for significant questions on the nature and timing of the peopling of the Americas.

Aesthetics and the classification of “markings” as rock art are tackled by Thomas Heyd (Chapter 16), who reviews and builds on previous critiques. Undeterred by the perceived legacy of art-historic approaches, he makes the case that post-Enlightenment taxa do not extinguish the capacity of cognitively modern humans to deploy the aesthetics of art – even if over vast periods of time – and obviously in cross-cultural contexts. He notes the relevance of aesthetics in dialogues about compositional art as diverse as that of Paleolithic Europe, South Africa, and the Lower Pecos in Texas.

Informed approaches

Informed approaches can provide the inspiration for unique modeling with these insights, combined with mid-range theory, arguably going beyond analogic reasoning. While many of the chapters are founded on some form of ethnography, ethnohistory, or comparative material culture studies, several, including those by Howard Morphy (Chapter 17), Robert Layton (Chapter 25), and Valda Blundell and Donny Woolagoodja (Chapter 27), explicitly mobilize the emic perspectives of the makers of rock art and those who use it as inspiration for new portable art (such as the production of bark paintings or desert acrylic art) or engage with rock art in contemporary narrative-building. The repainting of Wanjina figures in the Kimberley region of northwest Australia, while ensuring regeneration in its broadest sense, also defines a distinct cultural landscape and specific Aboriginal identities (Chapter 27). Wanjinis in the rock art are simultaneously important at individual, landscape, territorial, and religious spheres. This multi-valency of association with individual traditional owners, the larger clan, and entire language group allows for more nuanced understandings of rock art bodies elsewhere.

Howard Morphy (Chapter 17) pursues the neglected theoretical issue of the recursive potential of rock art as a medium and mnemonic for contemporary expression. Using an explicitly anthropological approach, he explores how rock art in the Kimberley and Arnhem Land is incorporated both graphically and ontologically into parietal canvases and ceremonial objects in contemporary times. This documented recursive practice in Aboriginal Australia provides a fascinating window into how rock art may have served as both repertoire and inspiration in the past – for both creating and adding art to extant rock art bodies and inspiring the form and graphics of parietal and portable art objects. That reservoirs of images can be re-imagined and re-contextualized by different parts of a society or new founding groups is a recurrent theme in many of the chapters of this volume. This approach provides a powerful stimulus for scoping the scale and nature of these individual and group actions, especially where the expression may circulate through different media, such as portable objects, beads, or bodily ornamentation.

Context (is everything)

The definition of regional art bodies and style provinces based on trait analysis and the contextualization of these in a broader archaeological context continues to be an important, although clearly not new, research agenda. Linea Sundstrom (Chapter 19) focuses explicitly on contextual analysis at a variety of scales (landscape setting,

geographic range, and environmental correlates), sources (historically related cultural practices, sacred stories, and beliefs), and diachronic control. While this contextual approach encompasses many analytical methods and techniques, a case is made for the foundational importance of classifying and theorizing “style.”

The importance of context is exemplified by the case study presented by Robert Bégouën, Carole Fritz, and Gilles Tosello (Chapter 21). Drawing on their collaborative research with others in the Tuc d’Audoubert (Bégouën et al. 2009), they lead the reader on a journey through the subterranean depths of the Volp Caves, casting light on the actions and activities of the small group(s) of Magdalenians who used these caves. They provide a context for this parietal art’s production amongst the other activities carried out in the cave: clay sculpting, perhaps dancing, habitation, and the construction of ritual space. They argue that the unquestionable demographics of the cave’s occupants included women and children.

Style

In many of the chapters in this volume, style is taken as a given. There is, of course, an extensive and long-lived literature on the question “what is style” and, indeed, having – and using – a definition of style is paramount, if one is to explore variability in one’s rock art assemblage. Inés Domingo Sanz (Chapter 18) uses style as a tool to explore the temporal and social variation encased within Levantine rock art traditions. She defines the processes of deconstructing sites, panels, motifs, and attributes to approach different questions relating to the individual and the larger social group.

Many chapters in this volume characterize style provinces with unexpected configurations: the punctuated rock art locales separated by hundreds of kilometers of dunes in the Western Desert (Jo McDonald and Peter Veth in Chapter 6); the land-based grammars for the seascapes of Torres Strait and the broader Pacific (Ian J. McNiven and Liam M. Brady in Chapter 5); the stylistic continuities seen across the Atlantic and Mediterranean seaboard in megalithic art (George Nash in Chapter 8), and throughout Melanesia (Christophe Sand in Chapter 10), as compared to the stylistic diversity found in India (James Blinkhorn et al. in Chapter 11); the nexus between North American and Siberian rock art assemblages (Alice Tratebas in Chapter 9); the continuities and discontinuities in regional art bodies from the Levantine (Inés Domingo Sanz in Chapter 18) and the Southern Andes (Maria Isabel Hernández Llosas in Chapter 20) and the rock art of Patagonia (Judith Charlin and Luis A. Borrero in Chapter 22) where this raises new questions about human interactions through time which were considered well understood using different archaeological measures.

It is clear that often contemporary cultural configurations, nation-states, and arguably Eurocentric ways of dividing landscapes into analytical units, can act to obscure the extreme dynamism and ebb and flow of regional art systems and style provinces when these are unraveled through systematic art studies within an archaeological context. This serves as both a caution and an opportunity for future rock art studies, whether the art corpus is located within a well-defined landscape catchment, such as the Great Basin, or lies at an interstitial area between exceptionally well-profiled and studied style provinces (such as the Kimberley and Arnhem Land regions of northern Australia). The transparency of the theory and methods used to define these art

regions and style provinces through time is critical – as they will inform our understandings of past territoriality, group mobility, symbolic behaviors, and information-exchange systems, to name just some factors.

Gender

Engendered approaches present fertile ground as seen in the chapters by Kelley Hayes-Gilpin (Chapter 12), Jo McDonald (Chapter 13), and Joakim Goldhahn and Ingrid Fuglestedt (Chapter 14). The excitement evinced by Gero and Conkey (1991) in their application of explicitly feminist theory to archaeological practice is still palpable amongst these authors. And the boundaries are pushed well beyond the Paleolithic view that “all rock art was produced by men for men” to questions such as: to what extent and in what context did woman create rock art? What can be learnt about gendered lives and worldviews from rock art? What different cultural processes are at play in rock art assemblages which contain clearly gendered human figures compared to others that have ungendered humans or humans only represented iconographically? How are sex and gender differentiated in varying cosmologies? How can gender relations be witnessed in the cave art of hunter-gatherers generally? And how is gender messaging used with respect to power, prestige, and the organization of labor? Studies of sex, gender, and embodiment continue to hold great promise for comparative global studies and in enriching future scholars’ attempts to understand rock art.

Rock art at the cultural interface

This volume includes chapters which explore rock art that has been used in asserting identity and difference from examples as disparate as Siberian shamans to Aboriginal Australia. While the role of rock art in a resurgence of indigeneity in Soviet Russia has already been canvassed (Andrzej Rozwadowski in Chapter 26), issues of alternative interpretations of rock art based on current indigenous practice and traditional knowledge systems are highlighted by Robert Layton (Chapter 25) who canvasses potentially divergent epistemologies. The fact that Wanjina paintings were pivotal to the Wanjina-Wunggurr Wilinggin Native Title determination of the southwest Kimberley (*Neowarra vs Western Australia* [2004] FCA 1092) speaks to their centrality in the maintenance of landscape, the regenerative processes associated with their repainting, and the identity they bestow on individuals, clans, and language groups (see also Chapter 27).

The agency of rock art in mediating contact frontiers between different groups, and especially between indigenous peoples and settler societies, is addressed in two Australian chapters by Ursula K. Frederick (Chapter 23) and Paul S. C. Taçon, June Ross, Alistair Paterson, and Sally May (Chapter 24). Approaches that have focused on the literal representation of “outsiders,” and their exotic appearance, technology, and implements (such as guns and ships), give way to more complex narratives in these chapters where rock art reflects or deflects the processes of contact. Western hegemonic arrogance, which predicts for “hierarchies of impact” commensurate with the perceived level of “outsider-impact,” is deconstructed into far more detailed studies of how the art is selective and reflects “encounters, effects, and discoveries.”

Rock art on Groote Eylandt suggests intimate engagement with the Macassans on their trepanging visits: paintings include details of the prahaus' interior spaces, and sailors manning the vessels are dressed in traditional Indonesian garb. Conversely, European vessels are crudely drawn, lack detail, and their crews are depicted as monolithic and imperious (Clarke and Frederick 2008).

These studies explore why contact art does not necessarily occur at the point of contact but “at a distance,” such as the engravings of Captain Cook’s vessel in the Sydney region (McDonald 2008). Contact art is found in reconstituted social domains such as the walls of pastoral stations (Chapter 24) and in reconfigured social landscapes that result from the imposition of pastoral leases on traditional lands (Chapter 23). There is clear evidence that some contact art (i.e., that can be identified by its repertoire) has been painted over with more “traditional” motifs – and that the production of rock art has continued despite contact, while in other regions, earlier art traditions continue to be practiced in different social contexts and with different techniques and motif foci. These chapters provide us with clear insights into the ubiquity of Australian contact rock art (more recent and of a different nature from that found in North America or Southern Africa), but also demonstrate that rock art has continued to be produced in a variety of social contexts (where the absence of contact subject matter may suggest otherwise) and that this is not – and cannot be assumed to be – a literal representation of homogenized experiences of colonization. Rather, the rock art reflects different modes in a complex dynamic of cross-cultural interactions, resistance, and engagement with new economies, technologies, and labor systems.

Management

The management of rock art with World Heritage status is addressed in chapters by Nuria Sanz (Chapter 28), Aron Mazel (Chapter 29), and Valerie Magar (Chapter 30). What is immediately clear is that the universal codification, comparability of thematics, and varied geographies make – by definition – any assessment matrix of standardized criteria a challenge. In 2009, the World Heritage Committee adopted the themes of the World Heritage Programme “Human Evolution: Adaptations, Dispersals and Social Developments.” Nuria Sanz (Chapter 28) provides an insider’s view of the international cooperation and implementation currently underway in realizing rock art as an eligible category for listing. Aron Mazel (Chapter 29) provides a different insider’s view in his discussion of the listing of the uKhahlamba-Drakensberg rock art and the social and political context in which this has been sustainable – and has perhaps not yet reached its full potential. Valerie Magar (Chapter 30) provides global examples to illustrate how World Heritage listing has provided both a sorely needed management intervention and created risks that were unexpected, especially with respect to indigenous land management practices and the perceived benefits (see, again, Smith 2010). Peter Veth (Chapter 31) provides an Australian lens on these global issues, with his discussion on management scenarios for one of the world’s longest linear cultural landscapes, the Canning Stock Route of the Western Desert. The benefits of collaborative research on rock art and the involvement of an autonomous indigenous governance structure (points also identified as critical by Valerie Magar) are shown to be a fundamental starting point for the ongoing

sustainable use of rock art where its commoditized values may sit in stark contrast to continuing indigenous engagement with that landscape.

The digital age: recording and dating

It is fundamentally important in rock art research to know what you are looking at – and to know how it fits into the chronology in any regional sequence. The last two themes in this volume address these two critical aspects with technological advances in dating technology and improved digital approaches to capturing the exact nature of the rock art.

These chapters present methodological advances in dating petroglyphs, enhanced methods of direct-dating pigment art, and a case study which highlights the collaborative approach and intensive dating efforts in the thorough investigation of Chauvet Cave, the oldest dated painted cave in Europe. Collaborative research, as discussed above, is exemplified in Chapter 33 by Jean Clottes and Jean-Michel Geneste. The need for a conservation approach was recognized early, and access to the cave was minimized, protecting the integrity of the rock art's context and evidence for ongoing research. In a similar fashion to that described in the Volp Caves (Chapter 21), the research by Clottes and colleagues has unfolded painstakingly, with the cave now having more contexts dated than any other single site in the world: from associated rock art motifs, archaeological materials in hearths, carbon-14 accelerator mass spectrometry (AMS) on charcoal and bone (cross-checked in different laboratories), and uranium/thorium thermal ionization mass spectrometry (TIMS) dating of calcite (see Table 33.1).

Chapter 32 by Karen L. Steelman and Marvin W. Rowe provides an accessible entrée into the science behind dating very small charcoal and other carbon samples. The minuscule quantities of organics in most pigment art require the use of accelerator mass spectrometry, and the authors describe how plasma chemistry improves the viability of dating paintings using this process. They highlight the methodological requirements by which rock art researchers can take advantage of these technological advances in direct dating to improve the outcomes.

There is a lively retrospective critique by David S. Whitley (Chapter 34) which reactivates the controversial cation-ratio dating episode from the early nineties. Whitley suggests – through a series of scientific cross-checks using different techniques (varnish microlamination and lead profile analyses) – that rock art research should reconsider the potential of techniques that can be used to date engravings/petroglyphs. In tackling the Dorn varnish-dating controversy head on, Whitley's chapter raises for the next generation of researchers the issue that science needs to be applied in a meaningful way, and reinforces the problem that rock art age determinations can be highly contested. Without proper reference to an appropriate archaeological context and research question(s) – and without the appropriate application of a methodology – there are “many traps for new players” in this field (see comments by Karen L. Steelman and Marvin W. Rowe in Chapter 32).

Over the past decade there have been almost inconceivable advances made in computer (digital) assisted imaging. This means that rock art not easily seen clearly, or in analytically useful ways, with conventional recording techniques can now be recorded and analyzed accurately. Liam M. Brady and Robert G. Gunn (Chapter 35)

discuss image enhancement and identify how superimposition sequences can be disentangled. Affordable digital photography and the application of mathematical sequencing and light diffraction techniques can result in digital representations of rock art using 3D measurements, relighting, and enhancement of surfaces. These methods are described by Mark Mudge, Carla Schroer, Tommy Noble, Neffra Matthews, Szymon Rusinkiewicz, and Corey Toler-Franklin (Chapter 36) with examples from deep Paleolithic caves in France, and on specimens in the laboratory. Importantly, spatial meta-data are saved to archival highest standard, meaning that this recorded information can be preserved indefinitely.

This volume concludes with a chapter on the opportunities afforded by the Internet to the management of cultural heritage generally and specifically on questions concerning appropriate digital stewardship of rock art imagery into the future. Communities will increasingly assert ownership and enjoyment of the past via digital means, such as GPS-enabled capture devices and cloud-based data networks. Examples of successful digital heritage management, preservation, and knowledge sharing are provided by Michael Ashley and Cinzia Perlingieri at the Center of Digital Archaeology at the University of California at Berkeley (Chapter 37). The loop between individual artist, constituent group, and audience is digitally closed.

In bringing these diverse yet complementary global rock art themes and case studies together, we have, we hope, fulfilled the mandate to define new research issues and directions and to critique existing research paradigms. The current and new directions in rock art research profiled here include the liminal as well as more fundamental approaches. It is our hope that the next generation of rock art researchers will take inspiration from this diversity of offerings, and continue to develop the study of rock art to allow it to better inform archaeological imaginings, explanations, and reasoning.

REFERENCES

- Bahn, P., ed., 2010 *An Enquiring Mind: Studies in Honour of Alexander Marshack*. Oxford: Oxbow Books.
- Batarda Fernandes, A.P., 2009 *Conservation of the Côa Valley Rock Art Outcrops: A Question of Urgency and Priorities*. *Antiquity* 83 (319): Project gallery. www.antiquity.ac.uk/projgall/batarda319, accessed February 2012.
- Bednarik, R.G., 2006 *Australian Apocalypse: The Story of Australia's Greatest Cultural Monument*. Occasional AURA Publication No. 14. Melbourne: Australian Rock Art Research Association.
- Bednarik, R.G., 2009 *Fluvial Erosion of Inscriptions and Petroglyphs at Siega Verde, Spain*. *Journal of Archaeological Science* 36(10):2365–2373.
- Bégouën, R., Fritz, C., Tosello, G., Clottes, J., Pastoors A., Faist F., with Bourges, F., Fosse, P., Langlais, M., and Lacombe, S., 2009 *Le sanctuaire secret des Bisons. Il y a 14000 ans, dans la caverne du Tuc d'Audoubert*. Montesquieu-Avantes: Edition d'art Somogy et Association L. Bégouën. <http://cavernesduvolp.com/>, accessed July 2011.
- Casey, M., Donlon, D., Hope, J., and Welfare, S., eds., 1998 *Redefining Archaeology: Feminist Perspectives*. Canberra: ANH Publications, Australian National University.
- Chippindale, C., and Nash, G., eds., 2004 *The Figured Landscapes of Rock Art: Looking at Pictures in Place*. Cambridge: Cambridge University Press.
- Chippindale, C., and Taçon, P.S.C., eds., 1998 *The Archaeology of Rock-Art*. Cambridge: Cambridge University Press.

- Clarke, A., and Frederick, U., 2008 The Mark of Marvellous Ideas: Groote Eylandt Rock Art and the Performance of Cross-cultural Relations. *In* *Strangers on the Shore: Early Coastal Contacts with Australia*. P. Veth, M. Neale, and P. Sutton, eds. Pp. 148–164. Canberra: National Museum of Australia.
- Conkey, M.W., 1987 New Approaches in the Search for Meaning? A Review of Research in “Palaeolithic Art.” *Journal of Field Archaeology* 14:413–430.
- Conkey, M.W., Soffer, O., Stratmann, D., and Jablonski, N.G., eds., 1997 *Beyond Art: Pleistocene Image and Symbol*. Berkeley: California Academy of Sciences/University of California Press.
- David, B., and Thomas, J., eds., 2009 *Handbook of Landscape Archaeology*. Walnut Creek, CA: Left Coast Press.
- David, B., and Wilson, M., eds., 2002 *Inscribed Landscapes: Marking and Making Place*. Honolulu: University of Hawai‘i Press.
- Dowson, T.A., 2009 Re-animating Hunter-Gatherer Rock-Art Research. *Cambridge Archaeological Journal* 19:378–387.
- Gero, J.M., and Conkey, M.W., eds., 1991 *Engendering Archaeology: Women and Prehistory*. Oxford: Blackwell.
- Goldhahn, J., Fuglestedt, I., and Jones, A., eds., 2010 *Changing Pictures: Rock Art Traditions and Visions in Northernmost Europe*. Oxford: Oxbow Books.
- Helskog, K., ed., 2001 *Theoretical Perspectives in Rock Art Research*. ACRA: The Alta Conference on Rock Art. Oslo: Novus Forlag.
- Loendorf, L.L., Chippindale, C., and Whitley, D.S., eds., 2005 *Discovering North American Rock Art*. Tucson: University of Arizona Press.
- McDonald, J., 2008 Rock Art and Cross-cultural Interaction: How Did Each Side Perceive the Other? *In* *Strangers on the Shore: Early Coastal Contacts with Australia*. P. Veth, M. Neale, and P. Sutton, eds. Pp. 94–112. Canberra: National Museum of Australia.
- McDonald, J., and Veth, P., 2009 Dampier Archipelago Petroglyphs: Archaeology, Scientific Values and National Heritage Listing. *Archaeology in Oceania Supplement* 44:49–69.
- Rosenfeld, A., 1985 *Rock Art Conservation in Australia*. Special Australian Heritage Publication Series, No. 2. Canberra: Australian Government Publishing Service.
- Smith, L., 2010 Ethics or Social Justice? Heritage and the Politics of Recognition. *Australian Aboriginal Studies* 2:60–68.
- Tilley, C., 1994 *The Phenomenology of Landscape*. Oxford: Berg.
- Tratebas, A., 2010 Late Pleistocene Rock Art Traditions on the North American Plains. Paper Presented at the IFRAO 2010 Pleistocene Art of the World Conference in September 2010 at Ariege, France. <http://www.ifraoariege2010.fr/colloques.html>, accessed July 2011.
- Ucko, P.J., ed., 1977 *Form in Indigenous Art: Schematisation in the Art of Aboriginal Australia and Prehistoric Europe*. London: G. Duckworth and Co. Ltd.
- Veth, P.M., Stern, N., McDonald, J., Balme, J., and Davidson, I., 2011 The Role of Information Exchange in the Colonization of Sahul. *In* *Information and its Role in Hunter-Gatherer Bands: Ideas, Debates, and Perspectives* 5. R. Whallon, W.A. Lovis, and R.K. Hitchcock, eds. Pp. 203–220. Los Angeles: Cotsen Institute of Archaeology Press.
- Whitley, D., 2011 *Introduction to Rock Art Research*. 2nd edition. Walnut Creek, CA: Left Coast Press.