Territorializing/decolonizing South American prehistory: Pedra Furada and the Cerutti Mastodon

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ABSTRACT

South American rock art and prehistory with all its controversies is a rich site for exploring the processes of territorialization through which humans shape their understanding of the world in their earliest movements through the environment, and also for examining how narratives of prehistory are woven. The paper examines the debate over the Cerutti Mastodon and why Serra da Capivara, one of the largest rock art complexes in the world, remains in analytic limbo. It suggests that rethinking these two examples may offer a possible way out of some of the analytic difficulties in South American prehistory through a decolonizing approach to understanding the reasons for the rejection of the Cerutti Mastodon, and the lack of recognition of Serra da Capivara’s most important site – Bocqueirã da Pedra Furada (PBF).

Keywords

Serra da Capivara; rock art; narratives of prehistory; performativity; theater of knowledge

Territorialização / descolonização da pré-história sul-americana: Pedra Furada e o Cerutti Mastodon

ABSTRACTO

A arte rupestre e pré-história da América do Sul com todas as suas controvérsias é um local rico para explorar os processos de territorialização através dos quais os humanos moldam sua compreensão do mundo em seus primeiros movimentos através do ambiente e também para examinar como as narrativas da pré-história são tecidas. O artigo examina o debate sobre o Cerutti Mastodon e por que a Serra da Capivara, um dos maiores complexos de arte rupestre do mundo, permanece no limbo analítico. Sugere que repensar esses dois exemplos pode oferecer uma saída possível para algumas das dificuldades analíticas na pré-história da América do Sul, por meio de uma abordagem descolonizante para entender as razões da rejeição do Cerutti Mastodon e a falta de reconhecimento dos mais importantes da Serra da Capivara’s local – Bocqueirã da Pedra Furada (PBF).

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Territorializar / descolonizar la prehistoria sudamericana: Pedra Furada y el mastodonte Cerutti

RESUMEN
El arte rupestre y la prehistoria sudamericanos con todas sus controversias son un sitio rico para explorar los procesos de territorialización a través de los cuales los humanos dan forma a su comprensión del mundo en sus primeros movimientos a través del medio ambiente, y también para examinar cómo se tején las narraciones de la prehistoria. El artículo examina el debate sobre el Cerutti Mastodon y por qué Serra da Capivara, uno de los complejos de arte rupestre más grandes del mundo, permanece en el limbo analítico. Sugiere que repensar estos dos ejemplos puede ofrecer una posible salida a algunas de las dificultades analíticas en la prehistoria sudamericana a través de un enfoque descolonizador, para comprender las razones del rechazo del Cerutti Mastodon, y la falta de reconocimiento del sitio más importante de Serra da Capivara – Bocqueirã da Pedra Furada (PBF).

We … live in a multiverse world where there are many levels of simultaneous existence and these understandings predate time … Movement is part of us. Explanation is not necessary – only stories, which remind, acknowledge and honour the force of movement. People have moved from place to place and have joined and separated again throughout our past, and we have incorporated it into our songs, stories and myths because we must continuously remember that, without movement, there is no life. (Naranjo 1995, 250)

History must be rewritten if it’s rationalizing consistency throughout generations of colonial domination is to be challenged. (Wylie 1995, 261)

It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what ties tie ties. It matters what stories make worlds, what worlds make stories. (Haraway 2016, 12)

The landscape tells – or rather is – a story … we know as we go. (Ingold 2000, 189, 229)

1. Introduction
Science Technology and Society (STS), the interdisciplinary research area that explores scientific knowledge production in its broad social, historical, and philosophical contexts, was heavily Euro/US centric in its origins. Though it has come a long way in spreading its cultural and geographical ambit, its temporal/historical reach has been mostly limited to the modern period, showing very little concern with the earliest forms of technology and knowledge production.1 South American rock art and prehistory, with all its controversies, is a rich site for exploring the ways in which humans shape their understanding of the world, both now, and in their earliest movements through the environment.

Bocqueirã da Pedra Furada (PBF) is the most important rock art site amongst a vast complex of rock art sites in and around the Serra da Capivara National Park in Piauí, N.E. Brazil. Yet despite being claimed as one of the largest in the world (Buco 2013), and

1With some exceptions, for example Lemonnier (1993).
having some of the most lively and unusual images of human activity, it remains relatively little known outside Brazil, seemingly stuck in analytic “limbo” (Parenti 2014, 5853). This paper suggests a possible way to move beyond this point of conflict in South American prehistory through a performative approach to understanding the reasons for PBF’s lack of recognition and through seeing it as a very important example of an early “theater of knowledge” in South American prehistory. But to get to that requires, as Walter Mignolo suggests, “thinking with, against and beyond the legacy of Western epistemology” to establish a point of “colonial difference” that will allow an exploration of the arguments and difficulties that beset the wider field of Latin American prehistory and its Anglo/Francocentric forms of territorialization and domination (Mignolo 2000).

2. Theoretical frameworks and the problematic issues

One way to establish a point of colonial difference is to take the performative, coproduc-
tive approach of Tim Ingold’s “dwelling perspective,” which sees knowledge of the environment as being shaped in movement through it and vice versa: the environment is shaped in interactions with it (Ingold 2000; Turnbull 2007, 2012). A performative approach that opens up a point of colonial difference is one that is set in tension with the representationalism underpinning much of western scientific epistemology (Pickering 2013). Rather than assuming there is “a world out there” that is to be known and understood through representing it in the mind, a performative approach denies that divide. The world is not a separate external reality that can only be known indirectly; it is shaped and known through embodied material and linguistic practices. But, in turn, experience of engagement with the material constraints of the world shapes our understanding as we move through it. A performative approach then has a double meaning; cognition is embodied and enacted in practices. The world and our understandings of it are a coproduction, each shaping the other; a process that, in the case of people moving into and learning about a new environment, can be understood as territorialization. In the case of rock art, it suggests treating the images not just as representations, but as enactments of knowledge practices, as performances of territorialization.

The term “territorialization” captures a point of difference in a double sense; one as used by archaeologist Diego Salazar and his coauthors (2018) in describing the early socio-cultural dynamics of human occupation of the Atacama desert in coastal Peru, and the other in the politico-economic dynamics of colonization described by Deleuze and Guattari (2004), Mignolo (1995), Escobar (2008) and others (Turnbull 2004, 2013). Salazar proposes that territorialization be understood as processes of connection to land that are produced through social practices in which the environment, resources, mobility, subsistence, technology, memory, knowledge, and beliefs are continuously enacted and reproduced. Such a performative understanding suggests seeing cultural and cognitive landscapes as theaters of knowledge (Strang 2008; Turnbull 2002). So too does the more recent South American work of the historian Lucas Bueno and the anthropologist Andrei Isnardis (2018), who treat territorialization as dynamic staged processes of mobility, technology, and knowledge, creating known and meaningful places varying with environment and time.

Deleuze and Guattari’s, Mignolo’s and Escobar’s work has led to seeing colonization, globalization, and modernization as processes of deterritorialization and reterritorialization
in which local relationships and enactments of territory are destroyed and replaced. This occurs not only at the level of connections to land/country, sovereignty, and governmentality, but also at the level of theory, explanation and analysis, epistemology and ontology; especially in the allied disciplines of archaeology, genetics, and anthropology within prehistory (Figure 1).

Tom Dillehay’s discoveries of human occupation, initially dated at around 14 kya (kya meaning thousands of years ago is used throughout) at Monte Verde in Southern Chile, and his decades long struggle to have them accepted, has at one level brought about a radical revision of the foundational narrative of the peopling of the Americas. (Dillehay 2000; Moore 2014). But at a deeper level, its basic ontology remains largely unchanged.
The foundational narrative has been the so-called Clovis First model. In this model, the earliest people to move into North America, who were ancestral to all the indigenous peoples in the Americas, produced a variety of especially finely shaped bifacial stone points first found at Clovis in New Mexico and ideally suited to big-game hunting. Clovis points appear in the archaeological record in North America around 13 kya thus setting the date of first arrival (Waters and Stafford 2007). However, though the “Clovis First” model and the primacy of its dating has been conclusively overthrown, its key underlying assumption that migration into North America preceded migration into South America still goes largely unchallenged in the evaluation of ambiguous or contentious claims of pre-Clovis sites (Borrero 2016).

There is now accepted evidence of humans being present in the southernmost parts of South America at 18.5 kya, in the case of Monte Verde (Dillehay et al. 2015), which along with the acceptance of sites in North America like Meadowcroft in Pennsylvania at 16 kya (Adovasio and Page 2003), means that the earliest dating of the peopling of the Americas now precedes Clovis. Exactly when, where and how those early human movements occurred is the subject of much debate, and a new narrative is only just starting to emerge. But Dillehay’s analysis of the Monte Verde site opens up some very important alternatives to the received view (Dillehay 2000). Many of the sites in South America like Monte Verde are accepted as older than, or at least contemporary with, those in North America. Moreover, as Dillehay and others point out (Dillehay 2000; Moore 2014), while most (though by no means all) archaeologists and prehistorians agree that the origin of all the populations in the Americas is N.E. Asia, and that they likely arrived somewhere around 20 kya, it is now apparent that there is considerable diversity in the stone tools they used, in how they moved, how they organized themselves and their relationships to the territory socially and culturally, and in the completely new environments they encountered. Nowhere are these differences and variations more apparent than between North and South America. This suggests that South American prehistory and its people should be uncoupled from that of North America and understood in its own terms.

South American prehistory is at a very profound turning point, but so is global prehistory, and all the associated disciplines of archaeology, genetics, linguistics, geology, climatology, anthropology, biology, and STS. The change affecting them all is the challenge of non-linear dynamics of complex adaptive systems. All these disciplines are coming to recognize the need to deal with the complexity of multiscalar phenomena in simultaneous interaction that produce emergent effects (Turnbull 2012).

The major architectonic or grand narrative that subtends all the narratives of the peopling of the world – the “Out of Africa” story – is itself starting to unravel in the face of complex, non-linear interactions (Scerri et al. 2018). Until recently the orthodox model had it that a small group of humans left N. E. Africa around 70 kya and spread rapidly, replacing all earlier hominins, and eventually occupying all the econiches on the planet (Stringer 2012). Subsequently, they settled down, became sedentary, domesticated plants and animals, invented agriculture, developed art and culture, built cities, and the rest is history.

The stuff of newspaper headlines these days is the continuous revelation of new discoveries and previously unknown varieties of early humans and their interactions. These include Homo floresiensis, Homo naledi, and an as yet unnamed X group in Asia. There is now evidence of multiple interbreedings of Homo sapiens with Neanderthals and Denisovans (Kuhlwilm et al. 2016). Ancient human remains have been discovered not in East
Africa, but in Morocco 300 kya, showing a mosaic of features that align “with early or recent anatomically modern humans and more primitive neurocranial and endocranial morphology” (Hublin et al. 2017). Skulls have been found in Portugal and China dated at around 400 kya with a mosaic of features from *Homo erectus*, *Homo neanderthaliensis* and *Homo sapiens* (Athreya and Wu 2017; Daura et al. 2017). Human remains found outside Africa go back at least to 175 kya in Israel (Hershkovitz et al. 2018) and to 120 kya in China (Liu et al. 2015). Stone tools found in India have been dated at 300 kya (Akhilesh et al. 2018). The discoveries are seemingly never ending, so it’s hard to get a clear picture of a new understanding of how humans got to be everywhere.

But what is clear is that many archaeologists now agree that “the traditional ‘Out of Africa’ model … is in need of revision” (Bae, Douka, and Petraglia 2017). One such revision proposed by a group of archaeologists, geneticists, and climate scientists, including Chris Stringer, the ardent proponent of the replacement model, acknowledges that human evolution in Africa was a continent-wide mosaic of cultural and genetic interactions between differing groups in different places responding in differing ways to radical climate change (Scerri et al. 2018). Not only does this group acknowledge that previous genetic analyses were based on inappropriate models, but most significantly, Scerri’s group is proposing a non-linear chronology for understanding human evolution. They challenge the view that “*Homo sapiens*, evolved within a single population and/or region of Africa” (Scerri et al. 2018). On their model, “spatially distinct forms of material culture” and genetic developments can occur at the same time in differing places, connected by “sporadic gene flow” and occasional social communication (Scerri et al. 2018).

All history including prehistory is narratological, and of necessity orders events in space and time. (Pluciennik 1999) Such spatio-temporal narrative orderings of the past create places, hence Bakhtin’s evocative term chronotopic (Bakhtin 1981). The chronotopic narrative of prehistory, based on linear chronology, manifestly continues to have massive explanatory power but has seldom been challenged or even made visible. South American prehistory, like all narratives of the past, is itself a form of territorialization, of shaping the way territory is known and imbued with meaning. A reflexive understanding of prehistory requires an unknotting of the interweavings of deterritorialization and reterritorialization in the occupation by the original inhabitants in successive colonizations and also in contemporary narratives. This could open up the possibility of holding in tension non-linear understandings of the local processes of territorialization, that are specific to the early peopling of South America, with the prevailing linear narratives of prehistory.

3. The Cerutti Mastodon (Figure 2)

A site at which to start unknotting the complex of spatio-temporal orderings underpinning the heated debates about the peopling of the Americas is the Cerutti Mastodon site in Southern California. There are several reasons for starting with Cerutti. The criticisms leveled against claims of evidence for a 130,000-year-old site, where early humans processed mastodon bones, capture the territorial dimensions of the epistemology and ontology of the standard narrative of North and Latin American prehistory. One of the protagonists supporting the Cerutti claim is Eric Boëda currently the lead archaeologist working at the equally contentious site of Pedra Furada. One of the many Cerutti critics is Thomas Dillehay who back in 1994 was part of an on-site inspection team who wrote
a damning report on Pedra Furada (Meltzer, Adovasio, and Dillehay 1994). Dillehay spent much of his career defending his own highly contentious site – Monte Verde in Southern Chile. Now Dillehay, along with James Adovasio and David Meltzer, has become a major arbiter of sites claiming early occupation in the Americas, and is calling for a “decolonizing of the debate” (Dillehay 2014).

The broken mastodon bones and their setting with large rocks were uncovered in San Diego County in 1992 when State Highway 54 was being built. It has been dubbed Cerutti after Richard Cerutti the field paleoanthropologist from The San Diego Natural History Museum who flagged the site for excavation. At the time, dating using the usual carbon 14 and optical luminescence methods appeared to run out, going beyond their limits of 40 and 70 kya, and alternative dating methods had not yet become available. In April 2017 the team published their results in *Nature* with a Uranium series dating of 130 kya, which set off a firestorm of virulent criticism in a field that had already been deemed by an editorial in *Nature* to be “one of the most acrimonious– and unfruitful– in all of science” (Editorial 2012; Holen et al. 2017a).

The basic Cerutti claim is that the spatial arrangement of the stones and the bones show that the ends of massively strong leg bones of Mastodons laid on stone anvils were broken off by being smashed with heavy hammer stones. The excavators describe it as a bone-processing site rather than a kill or butchering site, where the purpose was to obtain bone flakes for tools and possibly to access bone marrow. The evidence for their claim is the distribution of the spiral-fractured fragments of the leg bones in association with the hammer and anvil stones. The bone and the stone fragments were right there enabling them to be reassembled, and the stones under microscopic examination showed recognizable use wear. The dating of the bones was done on over a hundred bone fragments using Uranium series analysis in an outside lab, all giving a date around 130 kya.

The team argues that the broken stones and bones were encrusted in calcium carbonate which was itself not broken, thus eliminating the possibility of the breakages being
caused by post-deposition forces, such as the machinery at the site. This extremely salient point is simply ignored by Haynes, for example, in his rejection of the site through hypothesizing an alternative possible, but unsupported, explanation for the bone breakage (Ferraro et al. 2018; Gruhn 2018; Haynes 2017). Moreover, there were no signs of the bones being trampled or mauled by carnivores. Nor, they claim, were there any geologic forces involved, such as tumbling in a flood or being crushed by falling boulders. The finds were all in fine sediment showing deposition of a small slow, flowing stream with no adjacent high ground (Boëda, Griggo, and Lahaye 2017; Braje et al. 2017; Ferraro et al. 2018; Haynes 2017; Holen et al. 2017a, 2017b, 2018a, 2018b).

The almost universal response was one of disbelief. Note the word disbelief. Belief is of course not supposed to play a role in scientific evaluation, but nonetheless is exactly what many of the critics expressed, arguably quite reasonably. Adam Brumm, from Griffith University in Queensland, Australia, no stranger to dating controversies having worked on the rock art recently found in Sulawesi and on Homo floresiensis, reacted to the Cerutti claim somewhat informally: “If these are indeed humanly modified artifacts they make the typical hobbit tool look like an iPhone … Most archaeologists will simply never believe it – the dates are too old, the ‘tools’ too untool-like, and the implications too mind-boggling” (Adam Brumm cited in Barras 2017). In other words, he disbelieves the claim because it does not fit with his model of prehistory that he shares with a majority of archaeologists. Given the large number of sites in the Americas that have claimed great antiquity, but have failed to be verified, informal disbelief seems quite rational (Moore 2014, 67).

But, what of the formal evaluations supposedly based on evidence and not belief? The critical evaluations fell largely in two inter-related categories – epistemological and evidential. Epistemologically, the issues that got most prominence were “how can a site be determined to be archaeological,” and “do extraordinary claims require extraordinary evidence?” (Boëda, Griggo, and Lahaye 2017; Deming 2016) Both of these issues, proposed as foundational to the discipline of archaeology, are less than axiomatic, being dependent on context and theoretical framework. The first question; “is a site archaeological” in the absence of human remains, turns on whether the objects and materials found are “artifacts” shaped by humans or “geofacts” shaped by natural processes, which in turn depends on how nature is cleaved from culture or “facts” from interpretation. (Wylie 2010) The arbitrariness of, and the work done, in establishing the nature culture divide has long been the subject of analytical critique in science studies (Latour 1993). It has become profoundly problematic in the ecological recognition of the anthropogenic, culturally created, cognitive, landscapes most recently revealed in Amazonia (Heckenberger 2005, 2006; Valle et al. 2018).

Though the question “what is archaeological” is problematic to establish, the demand for it is the “unequivocal” bedrock for accepting a site in the Americas as pre-Clovis. For example, Michael Waters argues: “To demonstrate such early occupation of the Americas requires the presence of unequivocal stone artifacts. There are no unequivocal stone tools associated with the bones … This site is likely just an interesting paleontological locality,” to which David Meltzer adds with a wry anthropomorphic contradiction, “Nature is mischievous and can break bones and modify stones in a myriad of ways” (Rincon 2017).

To accept artifacts as unequivocal requires the assumption of a form of territorialization in which the nature/culture divide is naturalized through a particular set of understandings
about when, and how, people move through, know, and interact with the environment. In this case, the assumptions are those uncritically embedded in the post-Clovis orthodoxy of the peopling of the Americas.

Those territorializing assumptions include the following:

- The Americas were the last continents to be occupied by humans. Those humans were modern *Homo sapiens*.
- The original inhabitants came from N.E. Asia.
- The origin point for all humans is Africa.
- The primary form of movement was terrestrial.
- The basic entry point into the Americas was across the Beringia land bridge.
- The population flow from Africa through Asia to the Americas can be set out as a linear, dendritic or branching chronology.
- That chronology can be unified into one single temporality in which archaeology, anthropology, linguistics, genetics, ecology and geology can be mapped onto one another, across all scales.
- In this chronology everything in South America happens after the occupation of North America.
- Environmental and topological conditions North and South are more or less uniform and comparable.
- Archaeologically all technologies especially stone tool technologies in the South are derivative from or related to those in the North. This also goes for social organization, languages and cultures.

4. Latin American prehistory

A critical examination of these chronotopic territorializing assumptions opens up the plausibility of South American prehistory and its peopling being uncoupled from that of North America and understood in its own terms. One of the least examined underlying chronological assumptions is that the story of human movements, in general, can be mapped using the timing of the branching of the genetic tree (Olson 2002; Wells 2003). Genetic histories, while deeply dependent on modeling, data quality and sample size, are usually taken as “unequivocal” and foundational despite the fact that there is currently no agreement on how many different groups moved into the Americas, or how, or when. For example, in 2015 two articles came out at the same time in *Science* and *Nature*, one paper firmly asserting two early population movements, the other paper equally firmly asserting just one (Raghavan et al. 2015; Skoglund et al. 2015). But far from being unequivocal, the data is thought by some to be haunted by possible “ghost populations” (Callaway 2015). And as Scerri et al. (2018) reveal in the proposed rethinking of the Out of Africa story, only rarely is the modeling underpinning the DNA analysis made apparent.

Another literally territorializing assumption that has come under challenge is that the migration of people in their early occupation of the world was predominantly by land. There is now a slowly emerging recognition that seafaring played just as important a role as terrestrial travel in the peopling of the Earth, this transforms the *Homo sapiens* “Out of Africa” narrative (Bednarik 2014). But it also allows for a radical revision of the narrative of
the peopling of the Americas by sea down the west coast along the so-called “kelp highway” (Erlandson et al. 2007). In particular, it undermines the self-evidence of the assumption that the peopling of South America postdates that of North America. It allows for the possibility of groups making rapid maritime passages south, and making landings simultaneously or possibly earlier than in the north (Dillehay et al. 2008, 2014, 2015).

The anthropologist Jerry Moore, in his 2014 survey of South American prehistory, finds that what stands out in his account are “the fundamentally different social and political experiences across the continent, a previously unseen disparity in the scales of social life” (Moore 2014, 367). He describes a wide diversity of societies, cultures, and polities with differing cosmologies, artistic traditions, ideologies, forms of social complexity, political organization, and relationships to territory (Figure 3).

Moore (2014, 370) makes the very telling point that language families in South America have “markedly discontinuous distributions … more than any found in any other part of the world”; discontinuities that he suggests reflect differing patterns of movement into the environment, differing modes of territorialization. He proposes a mosaic pattern of movement and interaction very much like the one that Scerri et al. (2018) found in Africa. The Tupi, for example, “spread by having communities split, migrating to new

Figure 3. Mosaic of South American languages. From https://en.wikipedia.org/wiki/Languages_of_South_America#/media/File:SouthAmerican_families.png.
areas and establishing new populations – separate colonies as it were – while Je speakers interacted with other populations in an intricate and non-linear mode of dispersion” (Moore 2014, 371). Moore (2014, 372) concludes that in South America “there is no reason to think that language, genes, and culture will appear to be a single package.” This conclusion serves to undermine one of the key assumptions of the orthodox narrative of territorialization, namely that genetics, linguistics, and archaeology can be mapped onto each other in a single, unified, linear, and chronological narrative.

5. Serra da Capivara

Given the now more open framework of possibilities for Latin American prehistory, what can be said about the analytic “limbo” of the archaeological and rock art sites at Serra da Capivara, in Piauí State, N. E. Brazil? Serra da Capivara first came to public attention when Niede Guidon published her dating of the site at 32 kya (Guidon and Delibrias 1986). This article and its very old dating unsurprisingly started a controversy. However, Guidon a French-Brazilian archaeologist who has devoted her working life to the site, establishing the Foundation Museum of American Man with an attached research centre (FUMDAHM), local schools, and a ceramics factory, succeeded in getting the complex of sites declared a National Park (Guidon 2014). It achieved a World Heritage listing in 1991 and now claims 900 recognized rock art sites (Buco 2013).

However, in 1994 Meltzer, Adovasio, and Dillehay made a site visit to Serra da Capivara, and their damning report has played a major role in the site being rejected as unreliably evidenced (Meltzer, Adovasio, and Dillehay 1994). Their criticisms were very similar to those made against the Cerutti Mastodon, especially their view that the supposed stone tools found at Pedra Furada were geofacts not artifacts, the product of the falling and shattering of cobbles from the overlying conglomerate swept down by the waterfalls at the site. A well-documented alternative explanation of the appearance of flaked stone tools has been that these are an accidental consequence of capuchin monkeys using cobbles as hammer stones to crack nuts, or possibly to create dust for dietary or medicinal purposes. However, there is no evidence of monkey use of the flakes as tools (Falótico and Ottoni 2016; Proffitt et al. 2016).

Subsequently, successive teams of archaeologists have excavated sites near Pedra Furada that lack the waterfalls or the overlying conglomerate, and they all now appear to show a series of occupations where people used and shaped quartz cobble stones from 24 to 8 kya (Boëda et al. 2014b, 2016; Lahaye et al. 2015). Nonetheless, the broad North American archaeological community continues to reject the site. This is with the exception of Tom Dillehay, who now acknowledges that his criteria for determining what counts as a stone tool have been changed in the light of his recognition that the stone tool technologies of Brazil and Chile constitute a separate technological tradition (Boëda et al. 2014a).

Among the reasons Pedra Furada has not been accepted is that Niede Guidon once claimed human presence at 50 kya, and that the earliest inhabitants came from Africa across the Atlantic by boat (Guidon and Arnaud 1991). For example, Maria Podestá and Matthias Strecker pointedly and baldly reject any discussion of the rock art at Serra da Capivara because of Guidon’s dating claims:

Guidon (2007) has proposed an extremely ancient rock art tradition for northeast Brazil (Serra da Capivara, Piauí) of some 48,000 years ago … However, the considerable antiquity of these
representations in Brazil is not accepted by a large part of the archaeologists and at present
does not agree with the standard vision of early peopling of South America. (Podestá and
Strecker 2014)

Guidon’s datings are indeed contentious, but the 48,000-year-old dating concerns the evidence
of Pleistocene occupation, hearths, and stone tools. Guidon has never claimed the rock art to
be that old. The recent datings of the rock art at Serra da Capivara make claims no older than
24 kya (Boëda et al. 2014a, 2014b), which are much less contentious. How is it that a misplaced
dating dispute provides grounds for denying any recognition of one of the most important
rock art sites in the world? What is at stake, why such virulence, why such heated debate,
why is it so difficult to resolve? While in archaeological circles it is not much discussed, it
has manifest political dimensions. The telling of the peopling narrative speaks directly to the
questions of sovereignty and ownership. The colonizing culture has always had an interest
in diminishing the length of time original inhabitants were present and in minimizing their
relationship to the land. Clearly, the issue is no longer about a simple adherence to the
“Clovis first” paradigm. Though it still has some proponents (Fiedel 2002) this has largely
been abandoned in the light of the acceptance of many sites predating the previously
assumed restrictions of entry into North America until around 11.5 kya (Meltzer 2009).

Dillehay has called for a “decolonizing” of the debate over the peopling of the Americas,
by which he means a less acrimonious and more civilized recognition of the strengths of
the arguments on both sides (Dillehay 2014). He does not appear to mean decolonizing in
the sense of acknowledging the differing territorializations at stake, or in the sense of
allowing South Americans, indigenous and colonizers to voice their understandings of
their prehistory in their own terms, independent of North American anglocentric authority,
as Boëda argues (Chaput 2014).

Dillehay does, however, make the two most important points that radically alter the
conditions for accepting and understanding sites in the South. As already mentioned, it
is now entirely plausible to accept dates in the South that are either contemporaneous
with dates in the North, or that even predate them, given the plausibility of the “kelp
highway hypothesis” (Erlandson et al. 2007, 2014). But Dillehay’s other most telling
acknowledgement is of Moore’s point that the ecosystems of South America are both
extremely varied and completely different from those of North America, with the attend-
ant corollary that there is every reason to expect completely different sociotechnical
knowledge traditions to develop in the South.

It is its ecosystemic variability which gives great salience to David Meltzer and Luis Bor-
rero’s assertions that, despite their reservations about dating and ambiguous evidence,
“what matters is understanding the virtually unprecedented migration of modern
humans across a rich, empty and dynamic Pleistocene landscape” (Meltzer, Adovasio,
and Dillehay 1994). Or as Borrero puts it:

hypotheses no longer need to be exclusively focused on chronology, which should only be
another important variable. Instead, a preoccupation for explaining the processes of explora-
tion and colonization offers more useful challenges … The differences between North America
and South America suggest that we should not rely on North American standards to judge
southern evidence. (Borrero 2016)

This is a conclusion that Forestier also makes even more strongly: “The epistemology
underlying [Boëda et al.’s 2014a] article implies that the facts and European certainties
are far from being universal ... The European model is a cognitive dead end and the exceptional not the rule” (Forestier 2014) (Figure 4).

6. The rock art of Bocqueirã da Pedra Furada (PBF)

So this would seem to be the moment to recognize that the debates about the dating and the artifacts in Serra da Capivara are contentious and rightly so, but that they are of necessity grounded in assumptions that need to be explicit and held in tension with one another. Given that what cannot be denied is the sheer volume of archaeometric and conservation by Guidon and her team, the unique quality of the park’s rock art, and that it has received scant attention in the world of archaeology beyond the work of Pessis and Guidon (2009), Pessis (2013, 2014a, 2014b), Binant (2013), Morales (2002), it is now its time to rescue Serra da Capivara from its relegation to analytic “limbo.”

Of the 900 sites at Serra da Capivara, far in the way the most impressive is Pedra Furada (Spanish for pierced rock); so-called because a few hundred feet away facing the rock art site is an impressive pierced rock wall. What suggests seeing Pedra Furada as a “theater of knowledge” is, first and foremost, the dramatic nature of the site itself. It appears as a long shining white cliff gently curving in two dimensions as it rears up 200 feet like a cresting wave, and as it stretches out into an enormous embracing amphitheatre framed between two waterfalls. At original ground level, it provided an irresistible continuous smooth platform for the rock painting. It is the rock art itself that is so impressive for the vivacity of its beautiful colors. Like much rock art elsewhere in the world, there are hard-to-interpret
abstract dots and lines, and figures recognizable as animals. But what is so unusual are the images of humans in groups seemingly hunting, dancing, fighting, and embracing. They are living lives in dynamic three-dimensional interaction with their environment.

These images should be understood not as simply representing knowledge of the environment, as Anne-Marie Pessis suggests, but also as performing and enacting that knowledge in a space where the knowledge is assembled and transmitted in bodily movement and action. The act of painting, accompanied by stories, singing, and dancing in a particular place, needs to be taken into account – not just the images alone.

The archaeologist Anne-Marie Pessis, who has worked extensively with Niede Guidon over many years, readily acknowledges that dating the art has proved extremely problematic since some images may be 12 kya or less, but some may be as old as 29 kya (Guidon et al. 2002). She argues that there is evidence of pigment preparation, that is, of mixing and heating ochre and clay to get red, yellow, white, orange, brown, black, and gray colors that can be dated elsewhere in South America at 29 kya, a period when the earliest art was geometric and non-figurative. (Lage 1999) The later “Nordeste tradition,” from around 12 kya at Pedra Furada, was largely highly skilled, minutely detailed, with narrative figures that she claims “represent actions of daily life as well as ceremonial events” (2002).

Elsewhere Pessis is a little more circumspect about a “scientific” understanding of the art but is very forthright about its political significance.

To know about the pre-history of the North East of Brazil it is also essential in order firstly, to awaken the national conscience to the plight of indigenous peoples; secondly, to end the physical and cultural genocide that continues in disguised form today by means of policies that exclude the indigenous peoples; and finally to restore to the indigenous component of Brazilian identity, its ancestral worth. (Pessis 2013, 284)

There has been 50ky of continuous indigenous occupation resulting from the site being a site of refuge in the face of colonization of the coast and the Amazon. Two centuries ago colonists exterminated the native peoples in a military operation planned with such refined ferocity that practically no vestiges remained of the last cultures that there existed. (Pessis 2013, 288)

Pessis suggests that Serra da Capivara art “began as play and became, in company with storytelling, a way of recording groups memory, a systematic form of social communication essential to survival” (Pessis 2013, 292). The “style is vital and dynamic movement exploding with agility and playfulness with simplified figures some with stylized masks and headdresses.” Its most outstanding characteristic is “capturing depth and movement” (Pessis 2013, 308).

Pessis goes on to argue that “the propitiatory magic of hunting, the cult of fertility, sexual initiation and shamanism have been the favorite themes in the interpretation of figurative registers.” And “part of these interpretations could be close to reality, but the problem is their scientific value” (Pessis, Martin, and Guidon 2014b, 658). In her view rock art is:

a coded graphical representation of a social thinking that was changed according to the material and environmental conditions. Prehistoric populations recorded images of their ideas, events, their choices and their rituals. A single word can summarize the role of prehistoric rock registers in global terms: that would be the survival [my emphasis] of the group author, indicating markers of their presence, of power relations and communication. These are the limits on the interpretation of the role of rock art, the limits we can allow, in our view, without falling into subjectivity and conjectures. It is an approach that can be
summarized in the proposal to not make concessions to the imagination or fantasy, as long as they cannot be proven by the procedures of scientific knowledge.

We believe the safest way of classification is to study the stroke techniques, identifying graphic profiles that present a standardised theme, technique and scenography. (Pessis, Martin, and Guidon 2014b, 659)

As an archaeologist Pessis is clearly concerned that her knowledge production is characterized as scientific, so she claims that while many of the images can be readily identified as representing, for example, pregnancy and childbirth, there is no scientifically verifiable way of knowing why it is so represented. All she can do is classify the images in terms of technique. This is, of course, the paradox at the heart of rock art research: how to ascertain its meaning in the absence of an indigenous author or ethnographic evidence. Nonetheless, Pessis has no problem asserting all rock art globally is to be understood in terms of its survival value for the group author through marking their presence in the landscape, and thereby expressing and communicating power relations. Maybe so, but is such an evolutionary functionalist explanation any less fanciful than the hunting magic, fertility and shamanism she so readily dismisses? (Figure 5a and b).

Trying to understand a knowledge tradition that in all likelihood differs profoundly from one’s own is always problematic. Yet the problems are at their most extreme when the contrast is between the supposedly universal verities of science and the localness of an indigenous tradition. At FUMDHAM they have developed a 3D laser technique for documenting the art with laser scanning. Elisabeth Medeiros, a mathematical cartographer working on this project, has developed a system for translating the 2D images on the rock face into 3D images that she believes reveal five different projection codes utilized by the artists. The resulting images render with dramatic clarity that which looks chaotic and confused on the surface. But of course, these seductive 3D projections are a hybrid translation/ transformation of an invisible indigenous practice through a western digital technology, and cannot be taken literally as real. Nonetheless, their very hybridity is revealing; at the least, it suggests that the artists were utilizing differing forms of spatiality and temporality in their imagery from those that western science uncritically assumes. Medeiros’ insightful technical analysis should be deployed at other rock art sites to bring into visibility the hidden spatio-temporal dimensions of other indigenous knowledge traditions (Figure 6).

7. Conclusion

Avoiding where possible the hidden assumptions of western knowledge, making and being explicit about them when they are unavoidable, is central to any thinking about rock art and the earliest expressions of human cognition. The first move I suggest is to step back from the assumptions of representation and communication, in order to think performatively. And then I recommend drawing on recent work by South American scholars on how the landscape was known and territorialized as the earliest peoples came to occupy an entirely new continent.

The historian Luis Bueno and anthropologist Andre Isnardis (2018) have recently proposed a model of the process of territorialization of the Brazilian Central Plateau which

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2Conversation with Elisabeth Medeiros, 25 August 2017.
went through several stages from early exploration to full occupation and then abandonment. They hypothesize:

that some places, once selected as important landmarks to help navigate the uninhabited or poorly known landscapes, becomes more and more “Places of People.” By the material remains on the floor and, especially the painted walls, they become recognizable as places that were once occupied, places that were already used by people with whom they could or could not have engaged directly or even recognized. In the perspective of regional ranking, we can say that these are places of interrelated temporalities, places that connect people through different times, places where people from different times engage together to continue building them, performing different kinds of interactions through the figures painted at the walls: denying, complementing, reinforcing are all aspects that, curiously or not, correspond to the same actions that we perform in the process of constructing histories and memories. (Bueno and Isnardis 2018, 15)
In this performative understanding of the rock art at PBF, Bueno and Isnardis are drawing on the work of anthropologists Fernando Santos-Granero and Stephen Hugh-Jones in the Amazon, who see Amazonian tribal groups as inscribing their history and memory in the landscape through “topographic writing” (Hugh-Jones 2016; Santos-Granero 1998). Rather than relapsing into inscription, writing and representation, I would suggest sticking with the performative and treating Pedra Furada as a literal “theater of knowledge” where successive territorializations were and continue to be enacted. My suggestion here fits well with that of Gabriela Martin and Irma Asón-Vidal that Serra da Capivara was a major center of the North East rock art tradition. It was a “reference omphalos” as they call it from whence the developing traditions spread out and returned in cycles of renewal (Martin and Asón-Vidal 2014).

Disclosure statement
No potential conflict of interest was reported by the author.

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