

# Skyscape Archaeology as Ontological Turn: towards an archaeoastronomy rooted in modern archaeological theory

**Fabio Silva**

## **Introduction**

That there has been a divide between archaeoastronomy and archaeology is not new (e.g. Champion 2015; Henty 2015, 2020; Hutton 2013). The reasons for this divide, centred as they often are on the debates surrounding British megalithic monuments in the 1960s and 1970s, may very well be historical; but what is less debated is why the divide still exists today. Archaeology has certainly moved on and, with the inception of post-processualist, hermeneutic or interpretative theoretical approaches in the late 1980s, archaeologists began to be interested in, among other things, belief systems, worldviews and cosmology (e.g. Johnson 2010). One would have expected that the work of archaeoastronomers would have been ripe for consumption and collaboration, filled as it is with claims of cosmological alignments. However, especially in Britain and wider Europe, this has not occurred except for rare instances of cross-disciplinary collaboration (e.g. Ruggles 2006; Kirch and Ruggles 2019). Archaeoastronomy's sister fields of ethnoastronomy and history of astronomy/astrology are considerably more embedded within the disciplines that engage with their respective primary sources, namely anthropology and history, actively engaging with wider debates (e.g. Champion 2012, 2016; Lopez 2020; Lopez and Altman 2017). Archaeoastronomy too needs to make a similar leap.

Over the past decade or so, a vocal minority of archaeoastronomers have expressed concerns that it is archaeoastronomy that needs to step up to this challenge. Clive Ruggles, one of the key scholars in the field for the past forty years, argued that archaeoastronomy needs to reflect 'the fundamental shift that has taken place in the archaeological paradigm during the past thirty years' (2011: 2). Lionel Sims, another key figure in British archaeoastronomy, wrote that 'a discipline that stands still waiting for others to accept it is a discipline in danger' (2010a: 11). At the time of writing, it could be argued that very little has changed. Archaeoastronomy, especially in Europe and as judged by the vast majority of papers in recently published edited volumes (e.g. Draxler *et al.* 2020; Hernandez *et al.* 2016; Prendergast *et al.* 2018; Silva *et al.* 2016), is stuck in the same rut with the critiques raised by Ruggles and Sims being still valid today. Against this backdrop of stagnation and resistance to change, only a few scholars have been trying to break new ground by engaging with anthropological insights (e.g. Iwaniszewski 1989; 2003; 2011), alternative frameworks (e.g. Malville 2015, this volume; Rappenglück this volume) or methodological advancements (e.g. Silva 2020a, 2020b).

Most archaeoastronomers, however, prefer to remain in the safe space of the 'no man's land' of an interdiscipline, as advocated by Anthony Aveni (see Belmonte 2016), rather than follow Ruggles' suggestion to explicitly bridge the gap between archaeoastronomy and archaeology (2011: 6-7). The latter is what Henty and myself called for when we came up with the term *skyscape archaeology* – a realignment of archaeoastronomy within wider archaeology and a deepening of their ties (Silva and Henty 2015, 2018). To achieve this, as Tim Darvill, a leading British archaeologist, put it, will require 'integration through shared ontological perspectives, compatible epistemologies and the investigation of common themes' (2016: 264). In other words, archaeoastronomy needs to engage with archaeological theory – a view expressed by

a number of archaeologists (Brophy 2020; Darvill 2015, 2016; Pauketat 2016), despite having been largely ignored by archaeoastronomers.

Within archaeology, theory is a set of 'structured concepts, statements, or models that are intended to make understandable in some way a specified set of phenomena' (Darvill 2008, 456). Archaeological theory is recognised as one of the cornerstones of the discipline, its history and developments always represented in graduate textbooks as well as being the subject of many volumes and articles (e.g. Bintliff and Pearce 2011; Crellin *et al.* 2021; Harris and Cippola 2017; Renfrew and Bahn 2020; Thomas 2015). At present, it is a very multivocal arena, with various currents placing emphasis on different perspectives and research questions. Nevertheless, there is a general consensus towards the anthropological and philosophical currents of posthumanism, relationality, indigenous paradigms and the ontological turn (e.g. Thomas 2015; Crellin *et al.* 2021a).

This chapter will explore one of these currents – the ontological turn – which, like so many others, originated from anthropology before crossing over into archaeology where it is already a quite recognisable theoretical framework (Alberti 2016; Cippola 2021). After an introduction to this important paradigm, the specific implementation systematised by Holbraad and Pedersen (2017) is explored in more detail. It is then shown how the foundational pillars of the latter have been foreshadowed within the works of some archaeoastronomers, including Lionel Sims, before more clearly taking shape in the works where the term *skyscape archaeology* was first introduced. Finally, how Holbraad and Pedersen's ontological turn can be implemented in future *skyscape archaeology* projects is explored. Fully aligned with the theoretical premises presented, this chapter does not attempt to be a manifesto for what *skyscape archaeology should be*, but rather an experiment with what *skyscape archaeology may be*. Its aim is to show that new questions can be asked, new approaches taken and, in the process, inspire scholars to seek out their own pathway of engagement with archaeological theory.

### **Turning Ontological**

Western scholars interested in the ethnographic or material records have routinely taken one of two approaches: either attempt to explain it or try to interpret it. The former focuses on *explaining* why something happens, for example why people behave in a certain way or why they built such-and-such a structure. Explanation is the purview of the scientific method and, within the humanities, it is found at the core of structural-functionalism in anthropology and processualism in archaeology (Barnard 2000: 70-76; Johnson 2010: 12-88). Although it could be argued that processualism is still alive within archaeology, under the guise of archaeological science, this approach is virtually non-existent within anthropology today, where it has been replaced by the postmodernist turn (Barnard 2000: 158-177). Postmodernists' disillusionment with positivism opened up the way for relativism, the belief that knowledge and truth are not absolute (as in positivism) but relative to the cultural or socio-historic context in which they are produced (e.g. Lyotard [1979] 2015). This led to the proposal of approaches that took inspiration from textual analysis by emphasising the need to *interpret* or translate the verbal and material records of different cultures and shed light on the role of the researcher, and their own cultural and personal biases, in the production of knowledge. This influential approach also found a home within archaeology where it

materialised in the form of post-processualism, now more commonly referred to as interpretivism (Johnson 2010: 102-121).

As an example, consider a certain group of people that states that ghosts exist (Holbraad and Pedersen 2017, 16). A given anthropologist might approach this by being interested in explaining why such a group believes in ghosts. The research process might involve exploring what social institutions exist (such as religion) that nurture and sustain such a belief. A different anthropologist, more inclined to approach this problem hermeneutically, may attempt to interpret this group's statements as evidence of a wider belief system that informs everything they say or do. However, whether this is done consciously or not, by cataloguing the problem as one of *belief*, both anthropologists have automatically been taking western views of reality for granted: ghosts don't *really* exist, so why does this group *believe* in them?

Some anthropologists have noticed that, despite decades of postmodernist effort to cast a light on the biases and hidden subjectivities of scholarship, there are layers of western ethnocentrism that have hardly been scratched. Argyrou argued that anthropology's questions are consistently treated epistemologically, which is to say they are treated as the clash between two different *kinds* of representations of reality – that of the researcher and that of the researched (Argyrou 1999: S31). The reality underlying the clashing representations is presupposed to be that of the researcher, often of western descent. To return to the example above, the issue of why people *believe* in ghosts can only be raised because the question of what might ghosts *be* has not been properly explored. In other words, anthropology's problems may be *ontological* – i.e. about the *nature* of things – rather than *epistemological* – about the *meaning* of things (Argyrou 1999). Had the problem of belief in ghosts been explored ontologically, the question of *why* people believe in ghosts would stop being necessary, just as it is not a question to the people being studied. Similarly, 'the reason why the things people say or do might require interpretation at all may be that they go beyond what the anthropologist is able to understand from his conceptual repertoire' (Holbraad and Pedersen 2017: 17).

This is not to say that indigenous people don't have epistemological concerns, but rather to emphasise how scholars have been almost exclusively approaching the data in this way, whilst leaving ontological questions untouched. The fact is that when a scholar encounters *otherness*, that difference between western and indigenous modes of thought, the default approach is to treat it as a matter of epistemological difference, i.e. to assume that the scholar and the native are talking about the *same thing*, but have different knowledge, views, understandings or attach *different meanings* to it. Another option, the one advocated by Viveiros de Castro (2015), is to treat it as ontological difference, that is to recognise that the western scholar and the native we are talking about *different things* altogether.

### *Cartesianism vs Perceptivism*

It can be argued that what lies at the root of western scholars 'wholesale conversion of ontological questions into epistemological ones' (Jones and Alberti 2016: 25) is the Cartesian split between mind and matter that is at the core of western philosophy. Descartes theorised that reality was divided in two distinct and mutually exclusive substances: *res cogitans* (a thinking thing) and *res extensa* (an extended thing) or, in other words, *mind* and *matter* (Nelson 2014: 279-280). This ontological rift can be said to ultimately lie behind the

object/subject and nature/culture dualities that have been so fundamental to the western scholarly endeavour (Viveiros de Castro 2015: 293). Nature, being composed of matter and being physical, can be approached objectively. Culture, on the other hand, being composed of thoughts is intangible and subjective. Postmodernism added an extra layer to this, by accepting that there is but one reality (one world or nature) whose study is the purview of the natural sciences, while positing a plurality of representations (many cultures) that need to be studied by the humanities. By treating indigenous discourses and material culture as 'elaborate metaphorical accounts of a "reality" that is already given' (Henare et al 2007: 1), one is automatically cataloguing them into this dualistic, and inherently western, ontology that necessarily undermines any claim that they may have over their own reality. In other words, if they claim to be talking about reality, rather than about a representation of reality (they say ghosts are *real*, not that they *believe* in ghosts) why not treat their statements as such? To do anything less is an act of colonialism not dissimilar from the many others identified by scholars (Gosden 2004).

The differing attitudes of westerners and Amazonians towards mind and body feature heavily in Viveiros de Castro's early ethnographic works and are undoubtedly the inspiration behind his revisionist approach to anthropology (e.g. 1992, 1998, [1992] 2011). One of his first observations was that, whether westerners posit that there is a single *world* (composed of Cartesian matter) but multiple *worldviews* (Cartesian mind), Amazonians turn this upside down by theorising that it is matter, not mind, that distinguishes different orders of beings (Viveiros de Castro 1998, 2015: 191-324). According to Viveiros de Castro's cosmological perspectivism, different orders of beings (e.g. pigs, humans, jaguars, spirits) all see their world in the same way (same mind), but the worlds they embody (matter) are uniquely different. A jaguar would see himself and other jaguars as humans with which to establish the same social relations that exist between humans. The humans that are killed by jaguars would appear to the jaguar as pigs do to humans. The blood they drink would appear like beer. And, when humans hunt them, the jaguar sees them as spirits preying upon the living. In other words, the mind of human and jaguar (and any other being) are the same; what distinguishes them is the body they inhabit, that is matter. Viveiros de Castro sees this as turning the Cartesian model on its head by positing a single culture (human culture is projected to all orders of beings) but with a plurality of natures. Perspectivism, when fully apprehended, induces a certain amount of discombobulation in the western scholar. The reason for this is that it is not merely another interpretation of a reality that we are already familiar with (for that would merely lead to cognitive dissonance), it theorises a reality that is completely alien to westerners. It therefore needs to be catalogued completely differently, not just as another representation or *worldview* but as describing very different *worlds*.

### *The Ontological Turn as Philosophy*

In Viveiros de Castro's hands, perspectivism became much more than a conceptual model that may or may not have ethnographic validity (which is still the object of debate, e.g. Apter 2017; Hornborg 2015; Lenclud 2014; López 2019), it became the springboard to a whole new philosophy. This philosophical theory is at odds with western ontology – or at least with most narratives on western ontology – but this is what empowers it to be deployed as anthropological theory. The core of Viveiros de Castro's work is not so much Amazonian perspectivism itself, but that a *perspectival anthropology* is possible (2015: 55-74). He conceives an anthropology that rejects the centrality of western ontology, posits a plurality

of worlds and, by doing so, starts asking ontological questions about the nature and reality of things, including the nature of the anthropological exercise and the anthropologist. These observations led to something of a revolution within anthropology, usually referred to as *the ontological turn* and described as a ‘bomb with the potential to explode the whole implicit philosophy so dominant in most ethnographers’ interpretations of their material’ (Latour 2009: 2).

Having identified what for him was a core issue for anthropology, Viveiros de Castro went on to suggest a way forward. Ontologies are conceptual frameworks or, perhaps more accurately, frameworks of *concepts* – those concepts that form the reality, the world, that one thinks with. Viveiros de Castro first suggested this when he wrote that we must start by treating indigenous ideas as concepts and follow through ‘on the consequences of such a decision: to determine the preconceptual ground or plane of immanence that such concepts presuppose, the conceptual personae that they deploy, and the material realities that they create’ (Viveiros de Castro 2015: 17). Concept is here being used in the sense of an ‘ontological assumption’ or an assumption about the reality of things (Holbraad and Pedersen 2017, 15), rather than as representations, categories or cognitive processes – to treat them as the latter would be to fall prey to the Cartesian mind/body split. As Viveiros de Castro (2015: 17, emphasis mine) put it:

Thus, the type of work for which I am advocating is neither a study of “primitive mentality” [...], nor an analysis of the natives’ “cognitive processes” [...]. My object is less the indigenous manner of thinking than *its objects, the possible world that its concepts project*. Nor is it a matter of reducing anthropology to a series of ethnosociological essays about worldviews.

Concepts are not evidence that non-western societies think differently, but that the content of their thinking – the objects in the above quote – is different, and that, therefore, the worlds they describe are different from that of the scholar. Because concepts are intellectual they can only be tapped by *conceiving them*, that is by thinking them into being. The ontological turn’s mission therefore is not ‘trying to determine how other people think about the world [... but] how *we* must think in order to conceive a world the way they do’ (Henare et al 2007: 15). This is an important, though subtle and often ignored, aspect of Viveiros de Castro’s work: the onus is on researchers to change *their* concepts and not just the concepts they have about the societies they study. This is what Holbraad (2012: 46) called *recursivity*, the willingness to allow one’s analytical concepts to be transformed in relation to indigenous ones.

For Viveiros de Castro and those that followed him, the ontological is not merely another strata to be added to the many already considered by anthropologists, such as the social, cultural, political, aesthetic, economic, ecological or psychological spheres. Nor does it somehow lie deeper than the ones just mentioned. The ontological turn cannot be simply reduced to a form of relativism because, as discussed above, relativism itself is based on a Cartesian ontology. What it is, as Henare et al (2007: 7) put it, is ‘a methodology where the “things” themselves may dictate a plurality of ontologies [...] a methodology that might generate a multiplicity of theories’.

*Ontologising Material Culture*

Viveiros de Castro's approach was developed exclusively with the ethnographic record in mind. However, it has been extended to material culture and, therefore, is primed for application to the archaeological record. The primary sources for archaeologists are the things left behind by a society – their structures, their material culture and their rubbish. Such things can have the 'same kinds of reflexive effects on anthropological conceptualization' as the statements given by people (Holbraad and Pedersen 2017: 200). By treating the *things themselves* seriously, one is allowing them to make a difference to the way we think about them, in a manner not dissimilar to what Viveiros de Castro has argued for with respect to indigenous statements. This approach also provides a natural link to the posthuman and new materialist approaches that have also taken a hold within archaeological theory (e.g. Crellin *et al.* 2021a, Thomas 2005).

Henare *et al.* (2007), who first took this leap, suggested that the way to achieve this is to take *things* as concepts. Their approach, later extended by Holbraad and Pedersen (2017: 209-220), is based on the realisation that things are as much concepts as they appear to us as material objects – they don't disclose themselves as perceptions but as conceptions and, therefore, our experience of them is conceptual (Henare *et al.* 2007: 14). We must therefore discard the assumption 'that concepts are ontologically distinct from the things to which they are ordinarily said to "refer"' (Henare *et al.* 2007: 13). Because things are concepts they, first of all, are concepts *to us*, which is to say that when scholars are looking at some material object such as a ceramic pot or megalithic site, they are already operating from the basis of a predefined conceptual and hence ontological framework. How can one decide *a priori*, before engaging with it, that 'the cloak worn by a Mongolian shaman is best conceived as a "material object"' (Holbraad and Pedersen 2017: 210)? The first step to overcome this is to remove the classificatory power that things have over us and treat them heuristically, i.e. treat them in a way that helps define a field of study without allowing them to limit, constrain or influence the analysis (Henare *et al.* 2007: 5-7; Holbraad and Pedersen 2017: 210-212). The second step is 'to realise that "different worlds" are to be found in "things"' (Henare *et al.* 2007: 15) and allowing those worlds to be conceived, that is disclosed, by the things themselves.

The ontological turn's injunction for dealing with material culture, therefore, is to 'instead of treating all the things that your informants say or do to and with things as modes of "representing" the things in question, *treat them as modes of defining what those things are*' (Holbraad and Pedersen 2017: 213, emphasis original). This approach further fleshes out the fact that to be ontological is to use *the other's* statements and material culture to reconstruct *our* concepts, rather than try to interpret those things. Therefore, 'to be ontological does imply [...] that the entirety of the analytical apparatus and what is being studied should be included in the analysis' (Alberti 2016: 174), thereby further highlighting the recursivity mentioned above.

Like many other scholars, some archaeologists have taken a leaf from the ontological turn's book and started to consider both ontologies and ontological questions in their works to the point that it is now a widely acknowledged and cutting edge framework (Alberti and Marshall 2009; Alberti 2016; Crellin *et al.* 2021b; Cipolla 2021). However, archaeologists have largely mirrored other scholars and focused on either the reconstruction of alternate ontologies from ethnographic or archaeological data, or the construction of new ontologies to be deployed in scholarly work, i.e. new ways of conceiving data and how it fits together (Alberti 2016; Crellin

*et al.* 2021b: 8; Cipolla 2021: 154-161; Holbraad and Pedersen 2017; 30-65). Such attempts, rewarding as they may be, fall short of Viveiros de Castro's injunctions because, in their pursuit for alternate ontologies, they either promulgate the western Cartesian 'ontology of one ontology' (Henare *et al.* 2007: 10) – the notion that there should be *one* ontology out there that is better than the current western one – or they fall into the trap of reducing ontology to just another synonym for culture (Henare *et al.* 2007: 10). What made Viveiros de Castro's work a theoretical explosive was precisely his unwillingness to seek refuge in the safe space of a disguised Cartesianism. Strictly speaking, the ontological turn should focus on asking '*ontological* questions without taking *ontology* as an answer' (Holbraad and Pedersen 2017: 11). Within archaeology, and despite some early solid work (Alberti and Marshall 2009, Alberti 2016), this is still a largely untapped arena that nevertheless may benefit from a recent systematisation of the methodology of the ontological turn (Holbraad and Pedersen 2017).

### **The Three Pillars**

Taking the works of Viveiros de Castro (2015) and Henare *et al.* (2007) forward, Holbraad and Pedersen's seminal volume (2017) not only streamlines their approach but also tracks the roots of the ontological turn by also acknowledging the significant influence of Roy Wagner's concept of invention (2016) and Marilyn Strathern's rethinking of the role of relations, comparisons and scales (e.g. 2020). As described by Holbraad and Pedersen, the implementation of the ontological turn rests on three pillars – *reflexivity*, *conceptualisation* and *experimentation* – which will now be explored in more detail.

#### *Reflexivity*

Reflexivity is not a new concept in either anthropology or archaeology, where it is often defined as 'the capacity for self-reference and/or critical self-reflection' (Vivanco 2018). Essentially this means that the scholar should not only pay attention to his data, but also to the manner in which the research is done – to reflect upon the scholarly process, paying particular attention to any biases that may have a bearing on data gathering and subsequent analyses. Reflexivity is the mandate to cast a magnifying lens over the often-unacknowledged influences of the researcher's society, gender, political outlook or religious views on the societies they study. The ontological turn, however, deepens the humanities' commitment to reflexivity by extending the domains which one might be reflexive about, to also include the ontological domain. According to Holbraad and Pedersen, the ontological turn demands one to be reflexive about one's own ontological assumptions, which is to say, assumptions about what 'kinds of things there are, [while being ...] open to new kinds of things' (Holbraad and Pedersen 2017: 10).

Postmodern applications of reflexivity, especially early ones, used it as a critical tool to expose and deconstruct interpretations and representations that were silently influenced by the circumstances of their production. Holbraad and Pedersen, however, emphasise reflexivity's potential for generating new ways of thinking (2017: 11-12). Prior ontological assumptions about what things are stop scholars from seeing new things in their data. The first step towards overcoming that obstacle is to cast a light on those assumptions, make them explicit, and then change them. As Holbraad and Pedersen put it (2017: 12): 'It is in this sense that the ethnography becomes the ground of new concepts, providing the lever with which anthropological perception can be transformed.'

Being reflexive in this way can raise instances of otherness or *alterity*, not at the level of meaning but at the conceptual, and hence ontological, level. Alterity, ontological difference or ontological tension, is here understood as ‘a function of the divergence between ethnographic materials and the assumptions the analyst brings to them’ (Holbraad 2012: 54). It is that which westerners find most strange or alien in ethnographic accounts and is the staple of good anthropological writing. The ontological turn elevates alterity to the role of anthropological pivot, the point of inflexion in the research process.

### *Conceptualisation*

In the same way that explanation and interpretation are the ultimate goals of positivist (processual) and hermeneutic (post-processual) approaches, respectively, conceptualisation is the ultimate goal of the ontological turn. However, the latter has much deeper roots than explanation and interpretation. Before scholars can attempt to *explain why* people do what they do, they must presuppose to understand *what* it is that people are doing. To be ontological is to show that such *why* questions are often based on a misapprehension of *what* (Holbraad and Pedersen 2017, 16), as seen above in the example about belief in ghosts. Post-modern hermeneutics is equally founded upon conceptual assumptions which the ontological turn would see questioned. Prior to the cultural translation which underlies the task of interpretation, the scholar must assume that they are equipped with the necessary concepts that can help the translation process – as anyone who frequently speaks two languages understands very well. To pick one example given by Holbraad and Pedersen (2017: 17-18), it is not uncommon to find hermeneutic insights such as ‘for peasants, time is circular, with the past ever returning to the present’ in the literature (e.g. Eliade 1991; Gell 1992: 30-6). However, such statements are, as they put it, ‘ambiguous in the very least, and often deeply incongruous and confusing’ (Holbraad and Pedersen 2017: 17). The idea of an ever-returning past is woolly since if the past is ever-returning to become present, what exactly is past about it? What characterises these forms of relativism is that they *abuse* familiar western concepts by placing them in otherwise illogical statements – they blur the definitions of those concepts rather than replace them with truly alternative variants. Such statements are therefore, more often than not, declarations of the conceptual (and hence ontological) limitations of the researcher rather than being the declarations of the actual, alternative ways of thinking of the researched that they purport to be – thereby adding fuel to the ontological colonialism mentioned above.

To be ontological is to start the research process from the premise that alternative ontologies are *alternative*, that they imply completely different conceptual toolboxes that go beyond the researcher’s capacity to use, or abuse, familiar concepts (Holbraad and Pedersen 2017: 18). Using the previous interpretative statement as a starting point, the ontological endeavour would proceed by asking of oneself and of the data how might time be conceptualised as circular and what might past, present and future mean in such circumstances? It is through similar conceptual experimentations – experimenting with concepts of time, past, etc. – that the ontological turn is ‘an attempt to take the challenge of relativism to its ultimate conclusion’ (Holbraad and Pedersen 2017: 18).

Much as with reflexivity, conceptualisation is not a new endeavour for anthropology, which has a long history of questioning assumptions that are taken for granted and highlighting diversity across different societies, including different ways of thinking and seeing the world.

Holbraad and Pedersen (2017: 15) go so far as to say that one of the most basic concerns of anthropology, which could be extended to the humanities in general, is to address how to conceptualise things. The ontological turn, however, changes these concerns in two ways: firstly, it moves conceptualisation from the side lines into the centre stage of the anthropological endeavour; and secondly, it deepens it and intensifies it (Holbraad and Pedersen 2017: 17). In fairness, Holbraad and Pedersen explicitly state that there is a degree of continuity between the hermeneutical enterprise and that of their own. The ontological task, much like the hermeneutic one, can still be seen as an act of translation. Nevertheless, as the Italian adage *traduttore, traditore* (translator, traitor) poetically summarises, every translation is an act of betrayal. A good translation, however, is one that betrays not the source but the target language, or as Viveiros de Castro put it, it is 'one that allows the alien concepts to deform and subvert the translator's conceptual toolbox so that the *intention* of the original language can be expressed within the new one' (2015: 58, emphasis original). It is this that lies at the heart of conceptualisation.

### *Experimentation*

At surface value, this last pillar might be easily misunderstood to align the ontological turn with a more positivist agenda. However, Latour has already crumbled the wall that divides experiment from observation when he noted that an observation 'is an experiment where the body of the scientist is used as instrument, complete with its writing device, the hand' (Latour 1990: 57). Holbraad and Pedersen further highlight how anthropological research already is experimental: firstly, due to it emphasising participant observation which is but a form of self-experiment, and secondly, because of the 'more or less controlled *intervention* in the lives of the people studied' as well as the ethnographer' (2017: 19-20).

The ontological turn exposes and revels in the self-experimental impulse of anthropology by extending it, much like as described for the other two pillars, to a meta level wherein researchers are encouraged to experiment with what fieldwork, fieldworker and even data may be. Holbraad and Pedersen summarised it when they wrote that 'the ontological turn amounts to a sustained experiment with what a concept, and indeed an experiment, could be' (2017, 20). It also allows, and even encourages, anthropologists to extend their self-experimental habitus to encompass not only the fieldwork dimension but also the analytical dimension: data gathering and analysis should not be treated separately, but as elements of a single undifferentiated procedure (Holbraad and Pedersen 2017: 24). To be ontological is to pass one's own thoughts and concepts through the same self-experimental machine as the people whose lives we study – i.e. to apply recursivity to one's research.

Finally, how can success be measured when such an experimental approach appears to exponentially raise the bar of variance and relativism? Holbraad and Pedersen indicate that success should be measured not by arriving at an explanatory framework that seems to apply to the data (as it would be measured by positivist approaches), nor by constructing an interpretation that blurs our conceptual toolbox while betraying the original (as is so often the case with hermeneutic approaches) but by 'the degree to which potentially useful concepts have been generated... [and] the extent to which this ontological experiment has explicated, problematized and improved existing ways of thinking (2017: 23). Holbraad and Pedersen's systematisation of the ontological turn, following on from Viveiros de Castro's insights, is indeed a whole new way of doing anthropology.

## Foreshadowings

In alignment with the pillars of the ontological turn just mentioned, this chapter aims to experiment with what skyscape archaeology may be, especially with what a skyscape archaeology that engages with Holbraad and Pedersen's systematisation of the ontological turn may look like. Having laid the foundations above, it is useful to look at whether they have been foreshadowed in past archaeoastronomical studies, thereby providing useful hooks upon which to develop an ontological approach to skyscape archaeology.

A certain degree of reflexivity has been present within some archaeoastronomical studies. A popular example is that of Clive Ruggles' questioning of whether equinoxes should be part of the conceptual repertoire of archaeoastronomers, considering how they are based on a 'a highly questionable implicit assumption that our Western concept of the equinox is a universal one' ([1997] 2017: 130). However, as this volume is in honour of Lionel Sims, it makes sense to look at how he has deployed reflexivity and conceptualisation, especially in questioning the definition of the so-called lunar standstills (e.g. Sims 2016a, 2016b).

If one observes and tracks sunrise (or set) from the same location for a period of a year one would notice that its position changes in a regular way. Like the swing of a pendulum, sunrise has two extreme positions where its movement from dawn to dawn slows down to a halt before it starts moving in the opposite direction. These extreme positions occur at and around the solstices and therefore, from a fixed location and on any given day, sunrise will always occur in-between the solstitial extremes (Figure 1). If one instead observes moonrise every day, one would notice a similar movement over the course of a lunar month. Unlike the Sun, however, if the extreme points of the Moon's swing are tracked over several years, one would notice that they themselves also move between a minimum and a maximum value ((Figure 1; Ruggles 1999: 36-37). These are usually referred to as *lunar standstills* although, *lunar extremes* or *lunar limits* are better monikers since the Moon's rising position, unlike the Sun's at the solstices, doesn't actually stand still (Fisher and Sims 2017).

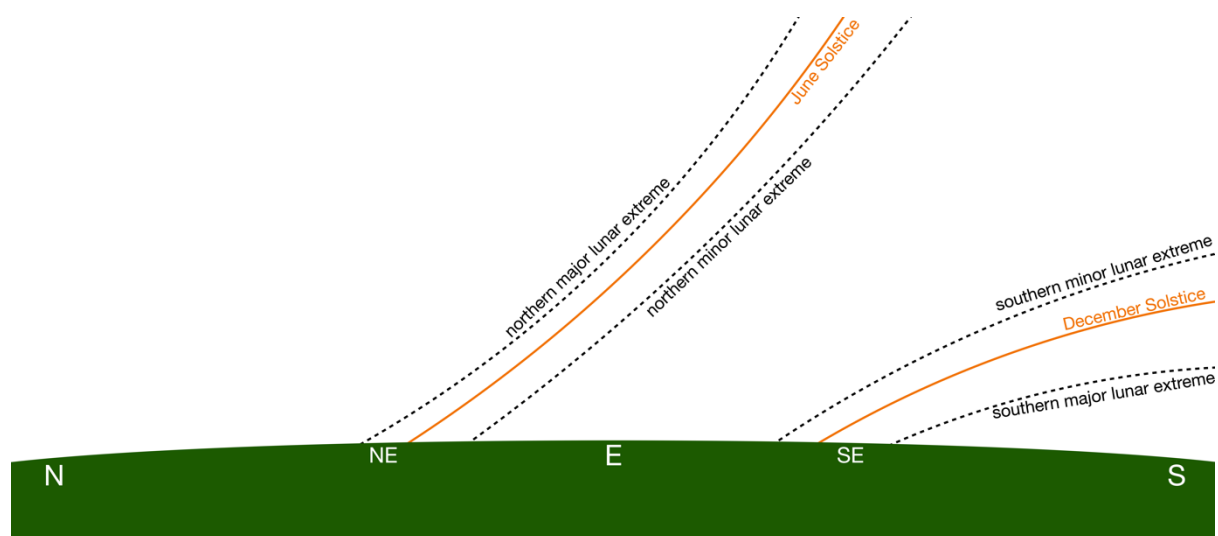


Figure 1 – Rising position and paths taken by sun at the solstices (orange solid lines) and by the moon at the major and minor lunar extremes (black dotted lines), as seen from a location at the latitude of London and with a flat horizon.

This definition of a lunar extreme is entirely based on the horizontal motion of the Moon and ignores its other properties, like its phasing. Just as the Sun has no phases, and its annual cycle across the skies can be reduced to its horizontal motion, this definition puts greater emphasis on the maximum lunar extreme (more commonly referred to as the major lunar standstill) when the Moon rises and sets beyond the reach of the Sun. Sims has criticised this conceptualisation as one where ‘the Moon behaves as if it were a “super-Sun”’ (2016a: 69) and therefore ignores the minimum lunar extreme (the minor lunar standstill).

Sims’ work, especially his early study of Stonehenge (2006), developed a different conceptualisation that focused on a property of lunar extremes that, according to him, would make them more attractive to societies in the late Neolithic of northwest Europe (e.g. Sims 2016a, 2016b). This property is that both maximum and minimum lunar extremes combine with the solstice Sun to display a reversed lunar phase cycle (Sims 2016a, 74). If one focuses on the extreme positions of the Moon, every 9 or so years when these extremes are either at their minimum and maximum breadth, the position of moonrise or set displays ‘a reversed set of 13 lunar phases spread over the course of one year every 27.3 days’ (Sims 2016a: 75), which synchronises the peaks of the lunar phase cycle (Dark and Full Moon) with the extremes of the solar cycle (the solstices). Looking at the most common lunar alignments identified at prehistoric British monuments, Sims notes that the spotlight is being shone over those sequences of thirteen reversed lunar phases that synchronise winter solstice with Dark Moon and summer solstice with Full Moon. Sims calls this the only model that does not ‘fail the tests (...) to explain the properties of prehistoric monument alignments on the Moon’ (Sims 2016b: 477).

In this and other works Sims routinely deployed reflexivity and conceptualisation in order to test and deconstruct specific interpretative models (e.g. 2009a, 2010b; Sims and Fisher 2020). He never explicitly referred to these anthropological concepts – for example, he called his conceptualisation an interpretative model – but, as an anthropologist himself (see introduction to this volume) they would no doubt be in the back of his mind. One thing he did do was rely on the identification of anomalies such as the presence of a wooden structure where only stone structures would be expected by a given model (e.g. Sims and Fisher 2020). Such evidence is usually disregarded as anomalous but, as Sims put it: ‘perhaps it is the model, rather than the evidence, which is anomalous’ (2009a: 340). He never explicitly pursued these anomalies as instances of ontological tension but, in his writings, taking such anomalies seriously have almost always led to new conceptualisations of megalithic monuments.

Examples such as those of Ruggles and Sims are actually rare in archaeoastronomy, likely due to the fact that hermeneutics and interpretation are yet to become ubiquitous within the field (e.g. Ruggles 2011). Rarer still is the archaeoastronomer that casts a reflexive eye on the epistemic process behind a claim of alignment. As discussed above, before one can interpret *something* one must know what that *something* is. Scholars like Sims have pushed the envelope by being sharply focused on the no-less important task of questioning what alignments *mean* – but what *are* alignments?

Two studies that touched upon this question happened to be the ones where the term *skyscape archaeology* first appeared (Henty 2014; Silva 2014). In the first of these, Henty set

herself to use Tomnaverie Recumbent Stone Circle as a vehicle to compare and contrast the methodologies, results and interpretation of archaeologists and archaeoastronomers (Henty 2014). Tomnaverie being one of the few recumbent stone circles to have been recently excavated (Bradley 2005), it provided a good testbed to expand on previous archaeoastronomical work, which largely focused on the orientation to the midpoint of the recumbent (e.g. Ruggles 1999). Henty decided to take a phenomenological approach that, instead of relying on simple numerical correlation between measurement and celestial object, used astronomical software to visualise and experience the setting of Sun, Moon and stars against the entire recumbent arrangement (Henty 2014: 15). This embodied but time-consuming approach allowed Henty to witness the choreography of the skyscape on a stage set by the recumbent (figure 2), in a way not dissimilar to how a prehistoric individual could have experienced it at Tomnaverie.



Figure 2 – The recumbent arrangement at Tomnaverie recumbent stone circle, Aberdeenshire. Photo by Liz Henty, with permission.

One of Henty's key conclusions was that 'the sunsets at Tomnaverie did not appear as a static event at a fixed point (the solstices) but as a gradual movement from first to last graze along the horizon' (Henty 2014: 8). This realisation, at first sight, may not appear to be particularly innovative – after all, others have made similar observations in the past. Thom, for example, included several observations of the grazing of both Sun and Moon at several British monuments (Thom 1967). What set Henty apart, and what more closely aligned her with the ontological turn, was that the above reflection led her to question the modern definition (and

hence conceptualisation) of alignment: ‘the term alignment and all that implies to *archaeoastronomers and archaeologists alike*, may be misleading’ (Henty 2014: 8, emphasis mine). She thereby opened up room for alternatives that may be closer to the conceptual framework of the prehistoric builders of these Scottish stone circles. The ontological nature of her questioning was not further pursued, but the paper does conclude with Henty proposing an alternative definition which she called ‘conceptual alignment, the expression of a religious and cosmological idea, not a precise observation’ (2014: 13).

In similar fashion, the present author took a reflexive look at previous archaeoastronomical attempts to study the orientation of passage graves, or dolmens, in Iberia (Silva 2014). These structures are far from presenting straight lines in the architecture of their passages, whether by design or the passage of time, and this casts many doubts over archaeoastronomers’ reliance on measurements of orientation of *axes of symmetry* (Silva 2014: 26). This led the author to question the idea that one can even capture the orientation of these structures in a single measurement (see figure 3, left). After all, it is possible that the passage ‘was intended only to indicate a general [as opposed to a precise] direction, and that a topographic or other feature, visible from within the chamber would mark the precise point of the alignment’ (Silva 2014: 26).

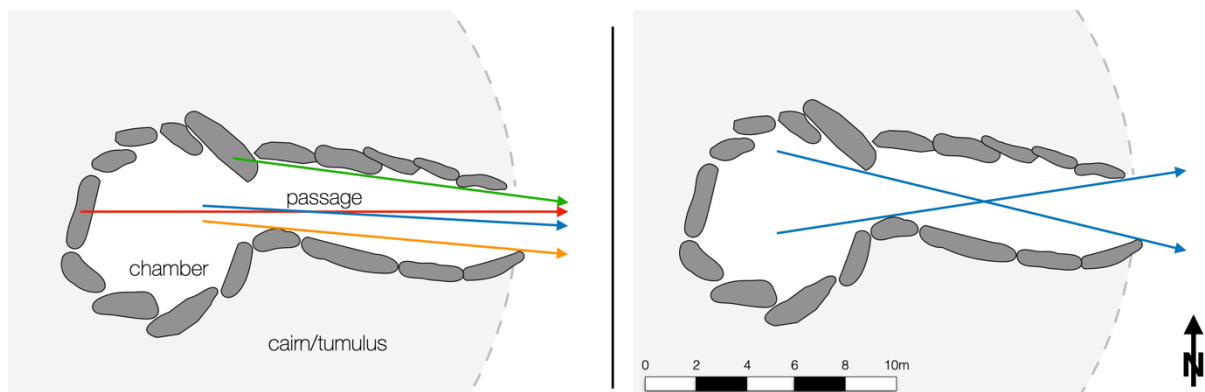


Figure 3 – Plan of a typical Iberian passage grave showing different ways of capturing the orientation of the passage by measuring the orientation of a single line (left), along with the two measurements for the *window of visibility* (right). Adapted from Silva (2020a).

What then is a sensible measure for the orientation of these structures? To answer this question the concept of *window of visibility* emerged, defined as ‘the region of the horizon that, given the structure’s corridor and entrance geometry, can be seen from within its chamber’ (Silva 2014: 27). This defines the entire range of orientations that are afforded by the architecture of each individual site (see figure 3, right). Such windows can be considerably wide – the average width of west Iberian passage graves being about 40° (Silva 2020a: 69) – but with this increased uncertainty came an improved confidence that if an object, celestial or topographic, was being targeted by the prehistoric Iberians it would definitely have to appear within this window; something that could not be said for the 2-3° margins of error considered by previous scholars.

The idea of a window of visibility, as a new concept underpinning the data gathering process, required a completely new epistemic pathway for the assessment of potential celestial alignments. This experimental development had started in a previous publication (Silva 2012)

and resulted from what was then a very intuitive series of steps: ‘If a celestial event was meant to be observed, the dolmen users needed only to make sure that the event was visible within the window formed by the corridor and chamber entrance’ (Silva 2014: 26). Therefore, as was elaborated upon elsewhere, ‘If one of the many directions in this range was of astronomical importance to the dolmen builders then one would expect this direction to be visible from within all dolmen chambers’ in a certain geographical region (Silva 2015a: 130). In other words, if prehistoric structures belonging to the same megalithic cluster were intentionally aligned to the same celestial object, then looking at their visibility windows should reveal a pattern. This approach presents itself as obvious once the scholar has ontologically shifted from a concept of orientation that is predicated on precision and discrete point measurements, to one that is more akin to the concept of *view* than to that of *direction* (see Table 1).

**Table 1** – Three definitions according to the Oxford English Dictionary (O.E.D. 2012). Author’s emphasis.

Orientation	a position with relation to something else
Direction	<i>a point</i> to or from which a person or thing moves or faces
View	<i>something seen</i> from a particular position, especially beautiful scenery

As with Henty, the above was not, at the time, consciously recognised as an application of the ontological turn. Reflexivity was sufficient to realise that there was an issue of uncertainty with respect to the orientation of these structures, but that problem can be conceived as either methodological (and hence epistemological) or ontological in nature. The former involves conceiving the window of visibility as a measurement uncertainty, but without ever questioning the reality (i.e. the ontology) of the concept of orientation employed. This is the approach that the present author has popularised and further developed as he strove to justify the validity, applicability and usefulness of his methodology through recourse to robust statistical frameworks hitherto unused within archaeoastronomy (Silva 2015a, 2017a, 2020a, 2020b). Alternatively, however, the problem can be conceived as ontological in nature, by recognising that it is not just the measurement of orientation but its very definition that is uncertain. The distinction may appear subtle at first sight, but it is exactly the line that divides epistemology from ontology, the line which the ontological turn demands that we move past as we strive to think like the people we are studying.

As can be seen from the above, both Henty and the present author skirted the ontological turn, asking the right questions but without recognising their ontological nature. Both scholars encountered alterity in the archaeological record, which led them to, quite independently, question the definitions of orientation and alignment, two of the core concepts of archaeoastronomy. Rather than allow this reflexivity to stop at the level of deconstruction, they pushed through by proposing new concepts and, particularly Silva, by experimenting with new analytical approaches. All pillars of the ontological turn were, therefore, found in these early works which were seminal to their views of where archaeoastronomy should go next (Silva and Henty 2015, 2018). It must be highlighted that what set these works apart from others where reflexivity and conceptualisation have been employed (e.g. Sims 2016a; Ruggles [1997] 2017; López 2016) was the extent to which Henty and the present author were willing to be ontological not just about the societies whose structures we were studying but about how we were doing archaeoastronomy. As discussed

above, this recursivity is also a key ingredient of the ontological turn that, one could argue, has been absent from archaeoastronomy.

### **Towards an Ontological Skyscape Archaeology**

Far from being perfect exemplars, the common thread and unique selling point of the two papers just discussed was the authors' willingness to use the archaeological record in order to ask ontological questions about how archaeoastronomy is done – in the process raising doubts over concepts that have been unquestioned for well over a century. From this perspective one could argue that to be ontological, in the sense of Holbraad and Pedersen (2017), was part and parcel of skyscape archaeology from the very first time this term was used. Having noted how the pillars of the ontological turn were surreptitiously present in those early works, one could now experiment with what a skyscape archaeology that consciously implements the ontological turn might look like. To realise this requires more than a couple of imperfect case studies that unconsciously, and rather loosely, deployed the ontological turn. What future scholars need are some guidelines on how to approach a skyscape research project from an ontological perspective, i.e. an approach that has been systematised in a way that can be deployed at will, just like any other theory and method. To be an ontological skyscape archaeologist one must ask what concepts one must change in order to see the worlds of the societies we study in a way that explains, first and foremost, what (and not just why) they did by encoding alignments into their architecture. Inspired by Holbraad and Pedersen's work, four steps can be suggested as forming the heart of the recipe for such a skyscape archaeology.

#### *Step 1. Recognising Alterity*

The ontological turn asks us to subvert our ontological expectations. We must acknowledge, recognise and come to terms with the fact that unless one is studying a society that is conceptually close to the modern west, there is a conceptual (and not only cultural) chasm between the researcher and the researched. The job of the ontological researcher is to bridge that chasm through application of reflexivity, conceptualisation and experimentation, but these tools should be pinned on something so as to avoid a complete conceptual breakdown. Therefore, the prime methodological prescription should be to actively search for things we could not have anticipated because they are inconceivable, nonsensical or anomalous to us. It is precisely the *otherness* with which they present themselves to us that can help pinpoint our own conceptual limitations thereby shedding light on the worlds of the researched. As Holbraad (2012: 45-46) put it: 'to think about difference, on this view, is to think differently: to transform one's most basic assumptions in light of the differences that trump them'. Observed anomalies and incongruences should neither be ignored nor dismissed but considered in light of the ontological tension that may be behind them.

Anomalies may appear for a number of reasons, but they always present themselves as anomalous relative to something, such as a pattern, an assumption or a model. It is when they have the potential to raise questions over the nature of what is being studied that they can be looked at from an ontological perspective. They may appear anomalous only in so much as we have approached them using concepts that are at odds with those of the people we are studying (e.g. Silva 2021: 163-164). Anomalies should therefore be considered prime suspects to unpack ontological difference, and hence to identify alterity. Alterity describes those things that do not make sense to us, but that otherwise would have made perfect sense to the

researched. When studying the past, especially prehistory, we do not have the luxury of knowing what made sense to people back then, but we can certainly identify things that don't make sense to us and, reflexively and experimentally, play with whether they may have made sense to past people. Recognising alterity, therefore, should be a key step in the process of skyscape archaeology.

### *Step 2. Being Reflexive*

Alterity may not result in obvious anomalies but rather manifest in subtler ways. It is therefore essential to deploy reflexivity to ensure that our conceptual frameworks are continuously questioned since it is in them that alterity tends to hide in plain sight. The second methodological injunction is therefore to standardise reflexivity as a core component of research in skyscape archaeology.

Although not systematised in any way, within archaeoastronomy reflexivity has most often been directed at interpretations – such as the meaning of a particular structural alignment – or at the approaches of previous scholars – such as what is seen in critiques of Thom's paradigm (e.g. Ruggles 1999). It could be argued, however, that the choice of methodology and its implementation, the acquisition of measurements and estimation of their uncertainty, the employed techniques for data visualisation and analysis, as well as explanatory or interpretative frameworks are all domains where more reflexivity is needed in archaeoastronomy.

To be ontologically reflexive, however, one must also step beyond those domains to reflect upon 'what kinds of things there are' (Holbraad and Pedersen 2017: 10), meaning to be reflexive about the very things that comprise the subject of our study: the structures, orientations, alignments, celestial objects, iconography, etc. What kinds of things are there to study? What concepts of orientation, alignment or monument are disclosed by the archaeological record? In the absence of any writings, can evidence be found, independent of any identified alignments, that the society would have conceived of alignment in such-and-such a way? Every concept employed, every methodological choice, of both prior researchers and one's own, should be questioned and reflected upon. Equally importantly, this act of reflexivity should be done explicitly and transparently included in publications, rather than merely paid lip service to.

In addition, reflexivity would go a long way into stymieing the apparition of fresh archaeoastronomical narratives that reflect more the conceptual and cultural biases of the researcher than the past societies that they are supposed to be about. This is somewhat of a necessity since skyscape research, by its very nature, is prone to attract all kinds of speculation, colonialist thinking and logical fallacies. Requiring reflexivity to be a central and explicit part of skyscape research projects would not only help curtail the researcher from falling into the traps that have beset many an archaeoastronomer in the past but would also further differentiate scholarly research from non-academic speculations.

### *Step 3. (Re)conceptualising*

Holbraad and Pedersen's ontological turn demands that the reflexive analysis does not stop at the point of nullification of a particular bias but is used as the springboard to look for alternative thought-processes – new concepts or methodologies – that would be better

suiting for the problem at hand. The task of this third step is therefore to rethink the problematic concepts that have been highlighted by the previous steps. This is to be done by bringing those concepts to bear on the differences which one seeks to make sense (Holbraad 2012: 45).

It is difficult to be prescriptive for this, precisely because any conceptualisation will be contextual and, hence, relative to the situation being studied and the data being employed. Let it however be said that it is a process of translation between two ontological frameworks: that of the scholar and that of the society they are studying. Translation here can be read in both of its modern dictionary definitions because it is as much a process of conversion as it is a movement from one ontological reality to another. As Iwaniszewski put it: 'in order to adequately evaluate non-western celestial lore we need to describe it in terms that are understandable to us' (2011: 30-1). In fact, archaeoastronomers routinely employ concepts stemming from modern astronomy such as solstices, lunar standstills and heliacal risings. But, as Iwaniszewski continued, 'why should the astronomical knowledge of non-western people be exclusively evaluated in terms of modern astronomical theory?' (2011: 31). One is reminded of Viveiros de Castro's definition of good translation, mentioned above, as one that 'allows the alien concepts to deform and subvert the translator's conceptual toolbox' (2015: 58) rather than the other way around.

As an example, Belmonte has considered whether the concept of 'ancient observatory' is relevant for archaeoastronomy (2015). Taking as his starting point the Oxford English Dictionary definition of observatory as 'a building equipped with a *telescope* or other *scientific* equipment for the study of *natural* phenomena' (OED 2012, 495, emphasis mine), Belmonte makes the case that some ancient buildings, such as the Ming Dynasty Beijing observatory or the site of Chankillo in Peru, do indeed fit this definition since 'it can be demonstrated that the astronomical components on site had "a practical purpose for the living"' (Belmonte 2015: 142). Many others, such as Newgrange or the temples of Egypt, Belmonte believes should not fit into this category since they were sites for the dead or for the gods rather than for the living (2015: 142). What he does, therefore, is not to deconstruct the modern concept but rather to tighten its applicability which should be based on the site's functionality and intended recipients. However, in doing so, Belmonte abuses the concept by claiming that said function 'does not need to be a purely scientific one' (2015: 142) despite the clear references to science and the nature/culture Cartesian split in the modern definition. Belmonte, therefore, has not allowed the archaeological evidence to deform and subvert his own conceptual toolbox, as the ontological turn demands one does.

A valid ontological question to ask is whether archaeoastronomers' unwillingness to let go of the modern concept of observatory is not allowing them to see different worlds and, equally importantly, different ways of doing archaeoastronomy. It is interesting to note that archaeoastronomers, consciously or not, have been treating archaeological sites as if they were observatories: sites where there is something to be measured to some degree of precision (like a *telescope*), using *scientific equipment* (compasses and theodolites), and where the research focuses on the *natural* phenomena they may align with, rather than on the social dimensions of the sites. Descriptions of fieldwork methodologies in archaeoastronomy are still single-mindedly built upon a conceptualisation of orientation as direction, rather than as view (e.g. Ruggles 1999; Prendergast 2015; Magli 2016). Why does

one go to sites solely to observe and measure (i.e. exactly what a astronomer does at a modern observatory) and not to experience, feel, etc? Where are the qualitative methodologies in archaeoastronomy? Even phenomenology, *passé* as it may be within archaeology, is not routinely mentioned nor described in the reference works in archaeoastronomy and, more broadly, has only been applied by a small number of scholars in this field (most notably Cristofaro 2017; Henty 2014; Sims 2009b). Perhaps a new approach to fieldwork (see below) can lead into (re)conceptualisations of what these sites were.

Similar thinking around how modern astronomical concepts, including astronomy itself, may be behind archaeoastronomy's stagnation have been expressed elsewhere and were behind the (re)introduction of the concept of skyscape into the field (Silva 2015b, 2017b). The purpose of this was not to simply replace one label by another. Rather, its purpose was for the label skyscape to be an *aide-memoire* alerting the researcher not to make any conceptual assumptions, not even about the very object of their study. That's why skyscape archaeology can't be just another name for archaeoastronomy, it needs to become something where the reconceptualization of astronomy as skyscape recursively applies also to the research questions and methodologies chosen by the researcher.

#### *Step 4. Experimenting*

Alterity and reflexivity are great tools to get to the stage where one doubts what things *are*, but once preconceptions have been deconstructed, how can one ensure that a newly minted concept is a better alternative? This fourth step is about giving oneself the freedom to be playful, to both wander and wonder at the possibilities of what *might be*. Precisely because of its playfulness it is impossible to be prescriptive about experimentation, except to say that this stage is part of a feedback loop with the previous stage of conceptualisation. Experimentation is part of the process of conceptualisation and vice-versa, in so much as one must experimentally test new conceptualisations by embracing them and letting them play their course. This may lead nowhere, in which case the concept can be discarded and maybe replaced by a different alternative; but it may equally lead somewhere new and unexpected. The route to this may itself be experimental but the destination should be as unmistakable as those 'moments of ethnographic "revelation" – in which unanticipated, previously inconceivable things become apparent' (Henare *et al.* 2007: 1).

The present author's experimentation with data gathering and analytical techniques based on the window of visibility concept has already been mentioned above (Silva 2012, 2014, 2020a, 2020b). Different research projects will require pathways entirely dependent on the nature of the alternative concepts and the breadth of experimentation one is willing to put them through. One option that can be highlighted involves the reconceptualisation of fieldwork as a laboratory for experimentation.

Fieldwork in archaeoastronomy is thought of solely as a device for the acquisition of data (e.g. Prendergast 2015), the implication being that the data has an ontological reality that precedes, predates and pre-exists the fieldwork exercise. However, one could say that the act of surveying an orientation is built upon interpretation: the decision of what orientations to measure is entirely based on interpreting which orientations are worth measuring. This point, famously made by Hodder (1997) for excavation in archaeology, has been missed by many

archaeoastronomers who often omit details of fieldwork, including methodological protocol, as if they should be obvious to anyone.

To be ontological one must go deeper than this. Like Freud’s famous iceberg metaphor (Green 2019), the choice of which orientations are worth measuring rests on largely unconscious conceptual frameworks which are comprised of, among others, two core ontological assumptions: the nature of the structure being studied and the nature of orientation (figure 4). To decide on which orientations to measure one needs to have a preconceived notion of what an orientation is, as well as a pretty good idea of what the structure being surveyed might have been in order to decide (i.e. interpret) which of the many orientations afforded by it may have been meaningful. This is true regardless of whether one is collecting quantitative or qualitative data. The ontological underpinnings of fieldwork are thus laid bare, and they go much deeper than Hodder’s ‘interpretation at the trowel’s edge’ (1997: 693).

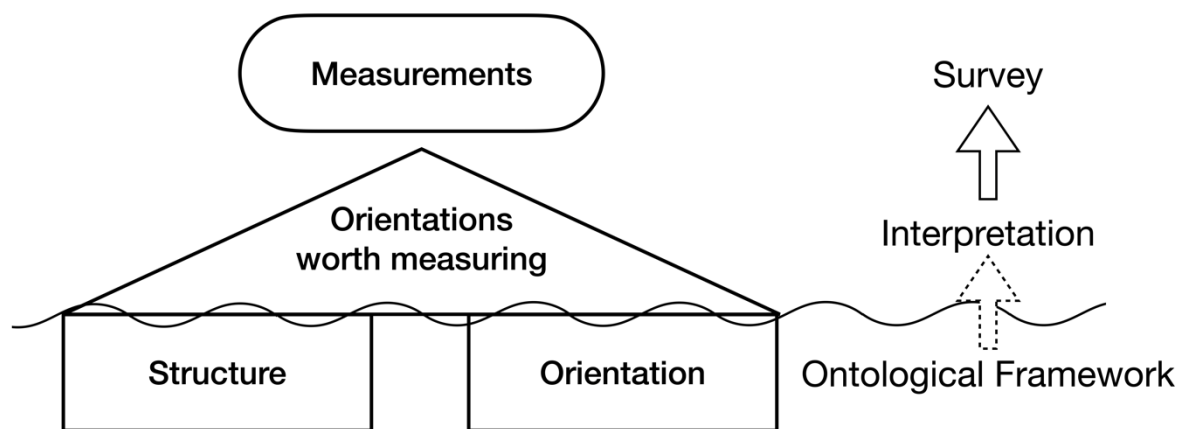


Figure 4 – The iceberg model of fieldwork in skyscape archaeology. The wavy line, mirroring the iceberg analogy, divides the unconscious conceptual assumptions that underlie fieldwork, from the more conscious interpretive and methodological decisions that are routinely made.

Under the ontological turn, fieldwork itself should be reconceptualised as an opportunity to experiment with conceptualisation *in situ*. Experiencing the site in its geographical context, armed with the details of the excavation report(s), under the light of Sun, Moon or stars, and with alterity and reflexivity in mind can be a laboratory for the development of fresh ways of thinking. This way, fieldwork would no longer be just surveying or experiencing the site but rather becomes an experiment in alterity, an active attempt to continuously undermine one’s (pre)conceptions and identify alternates worth considering. To put a spin on Holbraad and Pedersen’s sentence about ethnography (2017: 12): it is in this sense that *fieldwork* becomes the ground of new concepts, providing the lever with which *archaeological* perception can be transformed.

Rather than the fast measure-and-go approach, or the somewhat passive immersion of the phenomenologist, this is an active form of immersion where one constantly attempts to use the site to undermine the very nature of what one takes for granted, such as the reality of the structure (Is it really a tomb? Could it have been used in a different way? If so which other ways?), the reality of orientation (Is this line I am about to measure really the only possible definition of orientation at this site?), and even the reality of the research project (Would the

questions I am asking of this site make sense to the people who built it? Are these questions the only ones possible to ask?). The experimentation that is a core tenet of the ontological turn, effected through a fieldwork exercise, should be published as a reflexive report. Routine publication of such details would go a long way towards adding the transparency and openness that archaeoastronomy has lacked with its conceptual, interpretive and methodological assumptions hidden underneath a veneer of (in this author's opinion, false) positivism.

Having argued for the above, fieldwork should not be the only such laboratory. There are plenty of other opportunities for this degree of conceptual experimentation both prior to and post fieldwork: alterity, for example, is not necessarily found when in the field, but can crop up later when analysing the data, as it did for Henty (2014). In fact, Holbraad and Pedersen explicitly extend experimentation to both the data-gathering and data-analysis stages (2017: 24). There is therefore an opportunity here to recognise experimentation, applied to both fieldwork and analysis, as forming another core pillar of future skyscape research.

How then should success be measured in skyscape archaeology? As gleaned from Holbraad and Pedersen (2017: 23), one could say that success should not be measured by identifying an explanation for the orientation of such-and-such a structure, nor by crafting a meaning or interpretation for said orientation that blurs western concepts while likely betraying the ontology of the society being studied. Rather, success in skyscape archaeology should be measured by the level to which fresh concepts that explicate, problematise or improve existing ways of thinking about the societies being studied have been generated. In other words, for the ontological skyscaper a new concept is worth more than a thousand alignments.

### **Concluding Remarks**

For archaeoastronomy to become of interest to archaeologists, it needs to renew and update itself. One way of doing that is through engagement with archaeological, and by extension anthropological, theory. This chapter has suggested one possible route based on a paradigm shift that is still reverberating through the halls of academia. After introducing the basis for the ontological turn, the specific way in which it was used by anthropologists like Viveiros de Castro, Holbraad, Pedersen and Henare was presented in more detail, paying special attention to the role of reflexivity, conceptualisation and experimentation as well as the recursive nature of the ontological enterprise. Some of these aspects had also been appearing in archaeoastronomical works, such as those by Sims, before coming more strongly to the fore in the publications where skyscape archaeology was first mentioned. It was then suggested that one way for archaeoastronomy to bolster its theoretical premises would be to become a skyscape archaeology that embraces this and more consciously turns ontological.

What this might look like was discussed at length, both by looking at those early publications and by providing new recommendations of how to deploy the three pillars systematised by Holbraad and Pedersen (2017) to skyscape studies. In the way of a summary, it is suggested that ontologically-minded skyscape archaeologists seek not to explain or interpret a particular site or celestial alignment, but to produce new concepts that restructure their own conceptual frameworks in light of the evidence, thereby improving existing ways of thinking about the societies being studied. To achieve this, they will need to learn to recognise ontological tension for what it is and approach fieldwork and data analysis as laboratories to

reflect and experiment with conceptualisation. None of this is at odds with previous descriptions of skyscape archaeology, it merely deepens, intensifies and reifies those calls for reflexivity, socio-historic contextualisation and a stronger engagement with the humanities (Silva and Henty 2018).

How would adopting these recommendations help archaeoastronomy overcome its current stagnation? Firstly, engaging with the ontological turn, in either the variant elaborated upon here, or others, is a gateway into the wider theoretical frameworks that inform archaeological and anthropological research at present. On its own, this would not only be a step in the right direction, but a significant leap towards overcoming the gaps between the fields. Secondly, because the skyscape archaeology argued for in this chapter deploys an approach that aims to 'generate a multiplicity of theories' (Henare et al 2007, 7), the new concepts and methodologies that will be generated will ensure the continued renewal and revitalisation of the field. Skyscape archaeology, therefore, represents a strong drive for innovation. This is not of the passive kind wherein one patiently waits for developments in related fields to seep through, but an active determination to innovate at every turn. Every new research project, new society or structure one studies, new publication and even new field season and data analysis run should be conceived as an opportunity to rethink our assumptions and presumptions, not only about the people we are interested in but, importantly, also about what skyscape archaeology is and how it is done. This is what it means to be ontological, and it is one way to breathe new life into an otherwise stagnant field.

### **Acknowledgments**

The author would like to thank Ingrid O'Donnell, Pamela Armstrong, Anna Estaroth, Gerald Bennett and André Henriques for comments made on earlier drafts of this chapter. I would also like to express my gratitude to the anonymous reviewer and to Liz Henty whose comments considerably strengthened my arguments and their presentation. Remaining opinions and mistakes are my own.

### **References**

- Alberti, B. 2016. Archaeologies of Ontology. *Annual Review of Anthropology* 45: 163-179. DOI: 10.1146/annurev-anthro-102215-095858
- Alberti, B. and Marshall, Y. 2009. Animating Archaeology: Local Theories and Conceptually Open-ended Methodologies. *Cambridge Archaeological Journal* 19(3): 344-56. DOI: 10.1017/S0959774309000535
- Apter, A. 2017. Ethnographic X-files and Holbraad's double-bind: Reflections on an ontological turn of events. *HAU: Journal of Ethnographic Theory* 7(1): 287-302. DOI: 10.14318/hau7.1.021
- Argyrou, V. 1999. Sameness and the Ethnological Will to Meaning. *Current Anthropology* 40(supplement): S29-S41.
- Barnard, A. 2000. *History and Theory in Anthropology*. Cambridge: Cambridge University Press.
- Belmonte, J.A. 2015. 'Ancient "Observatories": A Relevant Concept?' In CLN Ruggles (ed) *Handbook of Archaeoastronomy and Ethnoastronomy*, 133-146. New York: Springer.
- Belmonte, J.A. 2016. Is There a Conflict between Archaeology and Archaeoastronomy? An Astronomer's View. *Journal of Skyscape Archaeology* 2(2): 255-260. DOI: 10.1558/jsa.31902

- Bintliff, J. and Pearce, M. (eds) 2011. *The Death of Archaeological Theory?* Oxford: Oxbow Books.
- Bradley, R. 2005. *The Moon and the Bonfire: An Investigation of Three Stone Circles in Aberdeenshire*. Edinburgh: Society of Antiquaries of Scotland.
- Brophy, K. 2020. Teaching Skyscapes: Keeping our Feet on the Ground. *Journal of Skyscape Archaeology* 6(2): 268-272. DOI: 10.1558/jsa.19638
- Campion, N. 2012. *Astrology and Cosmology in the World's Religions*. New York: New York University Press.
- Campion, N. 2015. Skyscapes: Locating Archaeoastronomy within Academia. In F Silva and N Campion (eds) *Skyscapes: The Role and Importance of the Sky in Archaeology*, 8-19. Oxford: Oxbow Books.
- Campion, N. 2016. *Astrology and Popular Religion in the Modern West: Prophecy, Cosmology and the New Age Movement*. London and New York: Routledge.
- Crellin, R.J., Cipolla, C.N., Montgomery, L.M., Harris, O.J.T. and Moore, S.V. (eds) 2021. *Archaeological Theory in Dialogue: Situating Relationality, Ontology, Posthumanism, and Indigenous Paradigms*. London and New York: Routledge.
- Crellin, R.J., Cipolla, C.N., Montgomery, L.M., Harris, O.J.T. and Moore, S.V. 2021b. Introduction: locating the book. In R.J. Crellin, C.N. Cipolla, L.M. Montgomery, O.J.T. Harris, and S.V. Moore (eds) *Archaeological Theory in Dialogue: Situating Relationality, Ontology, Posthumanism, and Indigenous Paradigms*: 1-14. London and New York: Routledge.
- Cipolla, C.N. 2021. In search of different pasts. In R.J. Crellin, C.N. Cipolla, L.M. Montgomery, O.J.T. Harris, and S.V. Moore (eds) *Archaeological Theory in Dialogue: Situating Relationality, Ontology, Posthumanism, and Indigenous Paradigms*: 151-167. London and New York: Routledge.
- Cristofaro, I. 2017. Reflecting the Sky in Water: A Phenomenological Exploration of Water-skyscapes. *Journal of Skyscape Archaeology* 3(1): 112-126. DOI: 10.1558/jsa.32170
- Darvill, T. 2008. *Oxford Concise Dictionary of Archaeology*. 2<sup>nd</sup> edition. Oxford: University Press.
- Darvill, T. 2015. Afterword: Dances Beneath a Diamond Sky. In F. Silva and N. Campion (eds) *Skyscapes: The Role and Importance of the Sky in Archaeology*, 140-148. Oxford: Oxbow Books.
- Darvill, T. 2016. Spirits in the Sky. *Journal of Skyscape Archaeology* 2(2): 261-264. DOI: 10.1558/jsa.31866
- Draxler, S., Lippitsch, M.E. and Wolfschmidt, G. 2020. *Harmony and Symetry: Celestial regularities shaping human culture*. Hamburg: Tredition.
- Eliade, M. 1991. *The myth of Eternal Return, or Cosmos and History*. London: Arkana.
- Fisher, D. and Sims, L. 2017. Modelling Lunar Extremes. *Journal of Skyscape Archaeology* 3(2): 207-16. DOI: 10.1558/jsa.34686
- Gell, A. 1992. *The Anthropology of Time*. Oxford and Washington, DC: Berg.
- Green, C.D. 2019. Where Did Freud's Iceberg Metaphor of Mind Come From? *History of Psychology* 22(4): 369-372. DOI: 10.1037/hop0000135
- Gosden, C. 2004. The Past and Foreign Countries: Colonial and Post-Colonial Archaeology and Anthropology. In L. Meskell and R.W. Preucel (eds) *A Companion to Social Archaeology*: 161-178. Oxford: Blackwell Publishing.
- Harris, O.J.T. and Cippola, C.N. 2017. *Archaeological Theory in the New Millennium: Introducing Current Perspectives*. London and New York: Routledge.

- Henare, A., Holbraad, M. and Wastell, S. (eds) 2007. *Thinking Through Things: Theorising Artefacts Ethnographically*. London and New York: Routledge.
- Henty, L. 2014. The Archaeoastronomy of Tomnaverie Recumbent Stone Circle: A Comparison of Methodologies. *Papers from the Institute of Archaeology* 22: art. 15. DOI: 10.5334/pia.464
- Henty, L. 2015. An Examination of the Divide Between Archaeoastronomy and Archaeology. In F. Silva and N. Champion (eds) *Skyscapes: The Role and Importance of the Sky in Archaeology*, 20-31. Oxford: Oxbow Books.
- Henty, L. 2020. Skyscape archaeology: the place of the sky in the academy. In L. Henty and D. Brown (eds) *Visualising Skyscapes: Material Forms of Cultural Engagement with the Heavens*. Oxon: Routledge.
- Hernandez, J.P., Gonzalez Garcia, C., Magli, G., Nadali, D., Polcaro, A. and Verderame, D. 2016. Astronomy in Past and Present Cultures (Special Issue) *Mediterranean Archaeology and Archaeometry* 16(4).
- Hodder, I. 1997. 'Always momentary, fluid and flexible': towards a reflexive excavation methodology. *Antiquity* 71: 691-700.
- Hornborg, A. 2015. The political economy of technofetishism: Agency, Amazonian ontologies, and global magic. *HAU: Journal of Ethnographic Theory* 5(1): 35-57. DOI: 10.14318/hau5.1.003
- Holbraad, M. 2012. *Truth in Motion: The Recursive Anthropology of Cuban Divination*. Chicago and London: The University of Chicago Press
- Holbraad, M. and Pedersen, M.A. 2017. *The Ontological Turn: An Anthropological Exposition*. Cambridge: Cambridge University Press.
- Hutton, R. 2013. The Strange History of British Archaeoastronomy. *Journal for the Study of Religion, Nature & Culture* 7(4): 376-396. DOI: 10.1558/jsrnc.v7i4.376
- Iwaniszewski, S. 1989. "Exploring some anthropological theoretical foundations for archaeoastronomy." In A.F. Aveni (ed) *World Archaeoastronomy: 27-37*. Cambridge: Cambridge University Press.
- Iwaniszewski, S. 2003. The erratic ways of studying astronomy in culture. In M. Blomberg, P.E. Blomberg and G. Henriksson (eds) *Calendars, Symbols, and Orientations: Legacies of Astronomy in Culture: 7-10*. Uppsala: Uppsala University.
- Iwaniszewski, S. 2011. The sky as Social Field. In C.L.N. Ruggles (ed) "*Oxford IX*" *International Symposium on Archaeoastronomy. Proceedings IAU Symposium No. 278: 30-37*. DOI: 10.1017/S1743921311012440
- Johnson, M. 2010. *Archaeological Theory: An Introduction*. 2<sup>nd</sup> edition. Chichester: Wiley-Blackwell.
- Jones, A.M. and Alberti, B. 2016. Archaeology after Interpretation. In B. Alberti, A.M. Jones and J. Pollard (eds), *Archaeology After Interpretation: Returning Materials to Archaeological Theory*. Oxon: Routledge.
- Latour, B. 1990. The force and the reason of experiment. In H.E. Le Grand (ed.), *Experimental Inquiries: 49-80*. Dordrecht, Netherlands: Kluwer Academic Publishers.
- Latour, B. 2009. Perspectivism: 'type' or 'bomb'? *Anthropology Today* 25(2): 1-2.
- Lenclud, G. 2014. From one ontology to (an)other. *HAU: Journal of Ethnographic Theory* 4(3): 363-372. DOI: 10.14318/hau4.3.023
- López, A.M. 2016. "A Topology of Power: Sky and Social-Space in the Argentinean Chaco." In M. Rappenglück, B. Rappenglück, N. Champion and F. Silva (eds) *Astronomy and Power: How Worlds are Structured: 217-221*. Oxford: Archaeopress.

- López, A.M. 2019. "Review: Martin Holbraad and Morten Axel Pedersen, *The Ontological Turn: An Anthropological Exposition*." *Journal of Skyscape Archaeology* 5 (1):108-115. doi: <https://doi.org/10.1558/jsa.38835>.
- López, A.M. 2020. "Problematizando el concepto de 'observación astronómica'. Reflexiones metodológicas a partir de la experiencia etnográfica entre los moqoit del Chaco." *Cosmovisiones/Cosmovisões* 1 (1).
- López, A.M. and Altman, A. 2017. The Chaco Skies: A Socio-Cultural History of Power Relations. *Religion and Society* 8(1): 62-78. DOI: 10.3167/arrs.2017.080104
- Lyotard, J.-F. [1979] 2015. *The Postmodern Condition: A Report on Knowledge*. Manchester: Manchester University Press.
- Malville, K. 2015. Meaning and Intent in Ancient Skyscapes – An Andean Perspective. In F. Silva and N. Champion (eds) *Skyscapes: The Role and Importance of the Sky in Archaeology*: ix-xvi. Oxford: Oxbow Books.
- Magli, G. 2016. *Archaeoastronomy: Introduction to the Science of Stars and Stones*. New York and London: Springer.
- Nelson, A. 2014. Descartes' dualism and its relation to Spinoza's metaphysics. In D. Cunning (ed) *The Cambridge Companion to Descartes' Meditations*: 277-298. Cambridge: Cambridge University Press.
- Jones, A.M. and Alberti, B. 2016. Archaeology after Interpretation. In B. Alberti, A.M. Jones and J. Pollard (eds), *Archaeology After Interpretation: Returning Materials to Archaeological Theory*. Oxon: Routledge.
- O.E.D. 2012. *Paperback Oxford English Dictionary*. Oxford: Oxford University Press.
- Pauketat, T. 2016. A Ray of Theoretical Sunshine. *Journal of Skyscape Archaeology* 2(2): 251-254. DOI: 10.1558/jsa.31901
- Prendergast, F. 2015 Techniques of Field Survey. In C.L.N. Ruggles (ed) *Handbook of Archaeoastronomy and Ethnoastronomy*: 389-410. New York: Springer.
- Prendergast, F., Gonzalez Garcia, A.C., Wells, G. and Belmonte, J.A. 2018. Road to the Stars (Special Issue) *Mediterranean Archaeology and Archaeometry* 18(4).
- Renfrew, C. and Bahn, P. 2020. *Archaeology: Theories, Methods and Practice*. 8<sup>th</sup> edition. London: Thames & Hudson.
- Ruggles, C. 1999. *Astronomy in Prehistoric Britain and Ireland*. New Haven and London: Yale University Press.
- Ruggles, C. 2006. Interpreting Solstitial Alignments in Late Neolithic Wessex. *Archaeoastronomy* 20: 1-27.
- Ruggles, C.L.N. 2011. Pushing back the frontiers or still running around the same circles? 'Interpretative archaeoastronomy' thirty years on. In C.L.N. Ruggles (ed) "*Oxford IX*" *International Symposium on Archaeoastronomy*. Proceedings IAU Symposium No. 278: 1-18. DOI: 10.1017/S1743921311012427
- Ruggles, C.L.N. [1997] 2017. Whose Equinox? *Journal of Skyscape Archaeology* 3(1): 127-131. DOI: 10.1558/jsa.33312
- Kirch, P.V. and Ruggles, C. 2019. *Heiau, `Aina, Lani: The Hawaiian Temple System in Ancient Kahikinui and Kaupo, Maui*. Honolulu: University of Hawai'i Press.
- Silva, F. 2012. Landscape and Astronomy in Megalithic Portugal: the Carregal do Sal Nucleus and Star Mountain Range. *Papers from the Institute of Archaeology* 22: 99-114. DOI: 10.5334/pia.405

- Silva, F. 2014. A Tomb with a View: New Methods for Bridging the Gap Between Land and Sky in Megalithic Archaeology. *Advances in Archaeological Practice* 2(1): 24-37. DOI: 10.7183/2326-3768.2.1.24
- Silva, F. 2015a. The View from Within: a 'Time-Space-Action' Approach to Megalithism in Central Portugal. In F. Silva and N. Campion (eds) *Skyscapes: The Role and Importance of the Sky in Archaeology*: 120-139. Oxford: Oxbow Books.
- Silva, F. 2015b The Role and Importance of the Sky in Archaeology: An Introduction. In F. Silva and N. Campion (eds) *Skyscapes: The Role and Importance of the Sky in Archaeology*: 1-7. Oxford: Oxbow Books.
- Silva, F. 2017a. Inferring Alignments I: Exploring the Accuracy and Precision of Two Statistical Approaches. *Journal of Skyscape Archaeology* 3(1): 93-111. DOI: 10.1558/jsa.31958
- Silva, F. 2017b. Defining Skyscape, Sophia Centre Press Blog, viewed 16 August 2021, < <https://sophiacentrepress.com/defining-skyscape/>>
- Silva, F. 2020a. On measurement, uncertainty and maximum likelihood in skyscape archaeology. In L. Henty and D. Brown (eds) *Visualising Skyscapes: Material Forms of Cultural Engagement with the Heavens*: 55-74. London and New York: Routledge.
- Silva, F. 2020b. A probabilistic framework and significance test for the analysis of structural orientations in skyscape archaeology. *Journal of Archaeological Science* 118: 105138. DOI: 10.1016/j.jas.2020.105138
- Silva, F. 2021. Review of Chris Scarre and Luiz Oosterbeek, 'Megalithic Tombs in Western Iberia: Excavations at the Anta da Lajinha'. *Journal of Skyscape Archaeology* 7(1): 160-165.
- Silva, F. and Henty, L. 2015. Editorial. *Journal of Skyscape Archaeology* 1(1): 1-7. DOI: 10.1558/jsa.v1i1.26951
- Silva, F. and Henty, L. 2018. Editorial. *Journal of Skyscape Archaeology* 4(1): 1-5. DOI: 10.1558/jsa.36090
- Silva, F., Malville, K., Lomsdalen, T. and Ventura, F. 2016. *The Materiality of the Sky*. Lampeter: Sophia Centre Press.
- Sims, L. 2006. The 'Solarization' of the Moon: Manipulated Knowledge at Stonehenge. *Cambridge Archaeological Journal* 16(2): 191-207. DOI: 10.1017/S0959774306000114
- Sims, L. 2009a The Logic of Empirical Proof: A Note on the Course of the Beckhampton Avenue. *Time & Mind* 2(3): 333-345. DOI: 10.2752/175169609X12464529903218
- Sims, L. 2009b. Entering, and returning from, the underworld: reconstituting Silbury Hill by combining a quantified landscape phenomenology with archaeoastronomy. *Journal of the Royal Anthropological Institute* 15: 386-408.
- Sims, L. 2010a Which Way Forward for Archaeoastronomy? West Kennet Avenue as a Test Case *Journal of Cosmology* 9: 2160-2171. URL: <http://journalofcosmology.com/AncientAstronomy107.html>
- Sims, L. 2010b. Coves, Cosmology and Cultural Astronomy. In N Campion (ed) *Cosmologies*: 4-28. Ceredigion: Sophia Centre Press.
- Sims, L. 2016a. What is the Minor Standstill of the Moon? *Journal of Skyscape Archaeology* 2(1): 67-76. DOI: 10.1558/jsa.v2i1.30212
- Sims, L. 2016b. What is a lunar standstill III? *Documenta Praehistorica* 43: 467-478. DOI: 10.4312\dp.43.24
- Sims, L. and Fisher, D. 2020. Through the Dark Vale: Interpreting the Stonehenge Palisade through Interdisciplinary Convergence. *Journal of Skyscape Archaeology* 6(1): 5-29. DOI: 10.1558/jsa.38690

- Strathern, M. 2020. *Relations: An Anthropological Account*. Durham and London: Duke University Press.
- Thom, A. 1967. *Megalithic Sites in Britain*. Oxford: Oxford University Press.
- Thomas, J. 2015. The future of archaeological theory. *Antiquity* 89: 1287–1296. DOI: 10.15184/aqy.2015.183
- Vivanco, L.A. 2018. *Oxford Dictionary of Cultural Anthropology*. Oxford: Oxford University Press. DOI: 10.1093/acref/9780191836688.001.0001
- Viveiros de Castro, E. 1992. *From the Enemy's Point of View: Humanity and Divinity in an Amazonian Society*. Chicago and London: The University of Chicago Press.
- Viveiros de Castro, E. 1998. Cosmological Deixis and Amerindian Perspectivism. *The Journal of the Royal Anthropological Institute* 4(3): 469-488.
- Viveiros de Castro, E. [1992] 2011. *The Inconstancy of the Indian Soul: The Encounter of Catholics and Cannibals in 16<sup>th</sup>-century Brazil*. Chicago: Prickly Paradigm Press.
- Viveiros de Castro, E. 2015. *The Relative Native: Essays on Indigenous Conceptual Worlds*. Chicago: HAU Books.
- Wagner, R. 2016. *The Invention of Culture*. 2<sup>nd</sup> edition. Chicago and London: University of Chicago Press.