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edited by
Fabio Silva and Nicholas Campion

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Front cover: Vincent Van Gogh's *Starry Night*, 1889. Museum of Modern Art, New York, USA/
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Back cover: The huaca of Moray, Peru (photo by Tore Lomsdalen).

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Afterword: Dances Beneath a Diamond Sky

Timothy Darvill

If, as Jimi Hendrix once suggested, we could kiss the sky, how would it feel? How would it taste? And what sounds would we hear? Such questions may seem irrelevant in the modern scientific world because space-science has mathematically modelled the infinite nature of the universe and has made great strides in documenting the content and texture of the nothingness beyond earth's atmosphere in the sky above our heads. But to societies without insights from such research these questions are very real, and often rather significant to their well-being. Traditionally, they were answered not by positivist Enlightenment understandings but by native science, complex cosmologies, mythological narratives, and beliefs systems that informed world views and gave structure and meaning to established ways of life. Standing on the highest available mountain was the nearest most people in ancient societies ever got to kissing the sky, although their monuments and material culture, both tangible and intangible, may have provided working models of the universe that substituted for the reality and made sense of the unknown.

As the papers in this book clearly show, the heavens comprise much more than the sun, moon, and stars in the night sky. People did much more than dance beneath a diamond sky. Time and again the contributors show how skylscapes are as much a part of the lived-in, experienced, and socially constructed world as the landscapes below our feet, the seascapes lapping our shores, and the tasksapes that structure the rhythm of everyday life. Their work shows how important it is to look up from archaeological features in the ground to contemplate the sky above and to consider how such a changing infinity was viewed and understood by ancient communities. What is visible in the sky by day or night relates closely to the construction and use of material culture in its widest sense. As Brown emphasises, this is also a topic that interests contemporary society, and as such we ignore it at our peril. The challenge to doing this well is developing robust theoretical concepts and solid useful tools in order to approach such questions without dragging in too much baggage from twentieth and twenty-first century ways of being.

First and foremost, the essays in this volume expand the universe that is archaeoastronomy into new domains. They build on existing traditions rather than sweeping them away, foregrounding essentially post-processualist thinking about the way people construct the worlds in which they live and thereby give an expanded vision of the social use of space. The introductory chapters by Silva, Champion, and Henty provide three rather different

perspectives on the way archaeoastronomy developed through the twentieth century and how the broader concept of ‘skylscapes’ might find application. All three recognize the universal importance of the sky, the potential for multi-disciplinary approaches, and the limitations of what is essentially descriptive geometry when it comes to analysing sites. But all three dance around a tricky theoretical problem that kicks in even before leaving first base: the post-processualist desire to dismantle the nature::culture dualism and its Cartesian implications. Until very recently, people could not change, restructure, or modify the skyscape in the same way that they could the landscape, but that does not mean they did not bring the sky into the domain of the cultural. Leaving aside the purely philosophical conundrum that a state of nature cannot logically exist because any humanly constructed categorization of the experienced world (including what we might chose to term ‘natural’) must be packaged as a socially meaningful item in order to be shared. Thus such items only exist within the realm of the cultural. However, a solution may be found in the way skylscapes are enculturated or given meaning. Whereas the landscape is physically appropriated through modification and thereby turned into a dimension of tangible material culture, skylscapes by contrast are metaphysically appropriated through projection whereby intangible material culture is mapped onto the heavens. In amongst these debates, and arising from the papers presented here, there are three things I would like to touch on by way of an afterword commentary: the significance of cosmologies; pattern and purpose; and the perspective of time-depth.

Significance of Cosmologies

No matter how much importance we attach to what the editors of this book refer to as ‘skylscapes’, it is important to contextualise this dimension of lived-in experience with the recognition that it is one part of a more complicated picture; a sum total of experience representing a well-ordered whole. What the components of such a whole might look like is culturally determined and varies across time and space, although in the Old World at least many seem to revolve around a three-level vertically structured conceptual scheme for the

universe. Where the origin of such a scheme lies is unclear, but Kaul (1998) has shown that by the second millennium BC in northern Europe it finds expression as the sky, the earth, and the waters under the earth, each conceived as circular planes that wheel eternally around an *axis mundi*. The gods inhabited all three levels, the living inhabited only the middle plane, while the dead mainly inhabited a fourth dimension closely associated with the watery underworld but accessible through liminal zones and disjunctions at the intersections of sky, earth, and water. Echoes of the basic scheme can be found in contemporary and later Egyptian, Mesopotamian, Greek, Roman, Norse, Celtic, and Abrahamic religions. What is especially important here is that the various elements are bound together by creation myths and narratives that make sense



Fig. 11.1: Spotted dolerite exposed on a horizontal outcrop on Carn Menyn, Preseli Hills, Pembrokeshire, Wales. The area visible in the picture is about 45cm across. [Photograph by Timothy Darvill; Copyright reserved].

of actual and invented experiences and allow real and imagined beings, people, animals, objects, and materials to co-exist and move between planes.

In this way, things seen as part of the skyscape can have agency in the landscape, and vice-versa. A possible example might be present amongst the spotted dolerites used at Stonehenge, Wiltshire, in successive configurations that culminated in the central Bluestone Horseshoe and Outer Bluestone Circle still visible today. Around 60 of these particular stones (part of the overall Bluestone assemblage) were brought more than 225 km from the Preseli Hills of west Wales to Stonehenge around 2500 BC (Darvill 2006, 136–41). At the source outcrops flat horizontal exposures reveal patterns of white spots looking like stars and constellations as if the night sky is mirrored and fixed for ever in the face of the earth (Fig. 11.1). At Stonehenge, blocks of the same stone were set vertically around the inner sanctuary as if lining the precinct with representations of the sky; powerful stones in their own right that I have argued were perceived to have magical healing properties (Darvill 2007). Curiously, dark coloured stone punctuated with white spots was also prized and worked at much the same time at exposures on Lambay Island, Ireland (Cooney 1993; 2002; Darvill 2011) and at Sark in the Channel Islands (B. Cunliffe pers. comm.). All contain large white phenocrysts of quartz and/or feldspar, spots that following deep-rooted traditions along Europe's Atlantic coast could be considered embodiments of the soul (Darvill 2002) or indicators of life-forces within the stone (Reynolds 2009).

On a wider front, the design and construction of many monuments mythologize and dramatize widely understood cosmological schemes. In some cases these might well include the skyscape. Take, for example, the round barrow, one of the most common monuments during the Bronze Age of Europe. At its most simple, a round barrow is just a hemispherical mound of turf, soil, and locally quarried bedrock heaped over one or more graves. But even such simple monuments embody physical expressions of deep-seated beliefs. The visible mound probably represents the domed vault of heaven above the earth, while the deceased is placed in a pit cut into the underworld below. Structurally, many are far more complicated with long histories of construction and use rationalized by additional symbolism, but the main picture is clear. Right across archaeological practice, understanding monuments requires attention to pattern recognition.

Pattern and Purpose

Cosmologies informed the creation of material culture in the past and thus provide the keys to understanding the past in the present. Recognizing patterns without understanding purpose is simply description; statistical probabilities that given monuments tend to focus on the sun or the moon or some recognizable constellation is interesting but ultimately meaningless unless supported by a back-story. When the key works it will unlock all the doors and make explicable the full data set. Patterned behaviour is just that: patterned.

An interesting example of how a seemingly confusing pattern can be resolved is provided by early Christian cemeteries in Britain and other parts of northern Europe. In general, most of the burials in these cemeteries are orientated east-west with the head typically at the west end of the grave. Various explanations for this have been offered (Rahtz 1978, 4), many involving an underlying solar cosmology. By later medieval times the back-story had

formalized as a belief that east-west burial was essential so that on the Day of Judgement, when Christ returns at dawn to claim believers, the dead could sit-up to face the rising sun on the eastern horizon. The principle is simple, and probably reflects earlier practices rather than new Christian dogma; the archaeological evidence is potentially easy to correlate. Indeed, as a rule of thumb any undated east-west burials are generally considered to be Christian. However, in a well-documented case involving the detailed analysis by Philip Rahtz of a large cemetery at Cannington, Somerset, the complexity and diversity of the archaeological record was revealed. Here the orientation of 299 out of the 305 graves for which the position of the body could be determined lay between 49° 72' and 128° 10' east. Locally, with an azimuth range of 78° 38', this represents the Solar Arc between the northernmost sunrise position on the Summer Solstice and southernmost sunrise position on the Winter Solstice (Rahtz 1978, fig 1; and see Brown 1983 for further comment). Although distributed in this way, and at first sight rather unstructured, all in fact conformed to the underlying cosmology because the position of sunrise on the day of the burial determined the alignment of the grave and served to substantiate the associated rituals and ceremonies. What confused the archaeological signature was that the sunrise position along the horizon varied according to the time of year so the cumulative effect of numerous separate events over several centuries created a much more diffuse, but nonetheless reconstructable, pattern.

Sometimes more intimate knowledge is needed to understand how monuments worked in relation to the sky. A case in point is the great temple of Ramses II at Abu Simbel, Nubia, Egypt, cut into the cliffs on the western bank of Lake Nasser. Completed c. 1265 BC the temple was dedicated to Amun, Ra-Horakhty, and Ptah. The central axis of the temple was made in such a way that the rays of the sun penetrated the sanctuary to illuminate the sculptures on the back wall (except for the statue of Ptah as the god connected with the Underworld who always remained in the dark) on what in the modern calendar would be 22 October and 22 February. These are not in themselves celestially significance moments, but are believed to be the birthday and coronation day respectively of the pharaoh and thus became significant in the ritual calendar of the time (Fitzgerald 2008). As part of the UNESCO programme to rescue the ancient monuments that would be drowned as a result of constructing the Aswan Dam the temple was relocated in its entirety in 1968 and now lies in an artificial hill high above the waters of the Aswan High Dam Reservoir (Fig. 11.2). Ironically, although the axis of the temple was perpetuated the sun no longer penetrates the inner sanctuary on the days it did in Dynastic times because the altitude of the horizon has changed.

So where does this leave us with reference to more specifically archaeological examples? Silva's study of megalithic tombs in central Portugal usefully considers 'windows of visibility' outwards from the chambers along the passage and, by implication, inwards towards the orthostats forming the back wall of the chamber. The strong correlation with the rising of the star Aldebaran above the *Serra da Estrela* seems convincing and the task now is to understand the role of Aldebaran and its light in the lives of the living and the dead during the later fourth millennium BC. Brady's review of Old Kingdom pyramid texts also illustrates the widespread belief in the divine nature of stars and the need to take better account of the potential of naked-eye astronomy in seeing these heavenly bodies within the range of sightlines created by architectural form. More speculative is Lomsdalen's case with the structures at Mnajdra in Malta. Notwithstanding the evident heavy reconstruction work



Fig. 11.2: Façade of the reconstructed temple of Ramses II on the west side of Lake Nasser, Nubia, Egypt. The original temple was completed in c.1265 BC; in the late 1960s it was cut into pieces and rebuilt on the present site, losing its astronomical significance whereby the rays of the sun shone through the entrance into the sanctuary on what is believed to be the birthday and coronation date of Ramses II: 22 October and 22 February respectively. [Photograph by Timothy Darvill; Copyright reserved].

at the site, the only set of alignments that look at all convincing are the equinoctial sunrise positions viewed from Room 2 in the so-called South Temple through the eastern entrance. But why might such an orientation be built into the structure of this monument? And why do the axes of other structures at Mnajdra and the score of other contemporary buildings elsewhere on Malta and Gozo have different alignments that seemingly show no interest whatsoever in the Solstitial or Equinoctial sunrise positions? It perhaps illustrates the danger of getting over-excited about solar events that seem important today, or which are exceptional within the range of archaeological sites under consideration, without thinking about the bigger picture as it would have been understood in the past. Seeking and explaining diversity in the patterns and purposes represented in the evidence is as important as finding conformity, if not moreso, and can be seen in approaches to other celebrated classes of monument.

Stonehenge, Wiltshire, is in many senses a unique monument but its primary solstitial axis can be seen at other sites in the area. Woodhenge, for example, 3 km to the northeast also has a solstitial axis rather weakly encoded in the oval architecture of its six concentric rings (Cunnington 1929, 12 and plate 3). But whereas the architecture of Stonehenge suggests a primary focus on the mid-winter sunset, Woodhenge probably focuses on the mid-summer sunrise. In its final phase the two opposed entrances of the earthwork around Durrington Walls open towards the mid-winter sunrise to the southeast and the mid-summer

sunset to the northwest (Parker Pearson 2007, 130; 2012, 79–80). Coneybury, another henge to the east of Stonehenge, appears to be structured around a mid-summer sunrise visible through the northeastern entrance (Richards 1990), and the recently discovered West Amesbury henge beside the River Avon at the terminal of the Stonehenge Avenue probably opens towards the east or northeast as well (Parker Pearson 2012, 225). Right across the ceremonial complex centred on Stonehenge it seems that dimensions of a solar cosmology are embedded in the form and structure of the monumental material culture. It raises the possibility that amongst the deities celebrated here may be forebears of the gods that have come down into more modern times as Apollo and Artemis (Darvill 2008, 144). But not all of the many great ceremonial centres of the later third millennium BC across the British Isles show such solar influences.

Recent work at Thornborough, North Yorkshire, for example, has led Jan Harding to look at quite different parts of the sky (Harding 2013, 205). The cluster of three giant henges, a cursus, and three nearby smaller henges along the east banks of the River Ure allow several key windows of visibility outwards onto the surrounding landscape. Mid-winter sunrise is represented through the southern entrances of the central and southern henges, but more widespread is an interest in the three offset stars of Orion's Belt that on the one hand seem to be reflected in the juxtaposition of the three giant henges on the valley floor and on the other in the visibility of this distinctive and widely recognised formation through the northern entrance of all three giant henges. As Harding remarks: 'Orion's Belt could have been interwoven into the beliefs, practices, and spiritual associations which collectively enlivened the complex and transformed it into a place of special religious poignancy' (2013, 215).

Accepting the possibility that ceremonial centres with similar ensembles of monuments in fact focused on very different structuring principles linked to a variety of cosmological references related to the specific cultural concerns of their builders and users opens up an interesting field of research deserving of further exploration. A modern analogy would be the many and varied dedications assigned to churches and cathedrals across Europe which inevitably leads to the placing of different iconography and a great diversity in the timing and tempo of associated calendar customs, festivals, and celebrations.

Back in prehistory, much the same applies to the developed passage graves of the later fourth and early third millennium BC found in Ireland and along the Atlantic coastlands of Britain (Herity 1974). Here the most celebrated case is Newgrange, Co Meath, Ireland, with its very clear architecturally embedded interest in the mid-winter sunrise that here creates a beam of light that illuminates the passage and the orthostat at the back of the central chamber (O'Kelly 1982, 124). Solstitial alignments are present at other developed passage graves, although the details vary: mid-winter sunset is encoded at Maes Howe, Orkney (McKie 1988); mid-summer sunrise at Bryn Celli Ddu, Anglesey (Burrow 2010); and sunrise on the equinoxes at Le Hougue Bie, Jersey, on the Channel Islands (Patton *et al.* 1999, 120). Slightly more complicated is Knowth, Co Meath, Ireland, just 2 km west of Newgrange and also within the Brugh na Bóinne ceremonial complex. Here, one chamber opens to the east and would be illuminated at sunrise around the time of the equinoxes while a second opening to the west would be illuminated at sunset on the same days in March and September (Eogan 1986, 178). But these are just a handful of examples amongst scores of similar monuments great and small that relate to a variety of contemporary cultural traditions across the British Isles. Most are orientated so that the sun will penetrate the chamber during sunrise or sunset

for a few days each year, but not at what are nowadays recognized as key moments such as solstices and equinoxes. The absence of a single obvious pattern to the orientation and alignment of these monuments again suggests that we need to look deeper for the key. With the example of Ramses II in mind it may be that passage graves celebrate critical moments in the lives of their founders or perhaps they refer to conditions at the time of locally relevant festivals that across the whole population of such sites would be well distributed through the year. Some might fall on the solstices and equinoxes, but for other communities the significant days lay elsewhere in the calendar. Perhaps, like the early Christian burials discussed above, the pattern simply reflects the sunrise or sunset position on the day the monument was set out. Or, alternatively, the application of innovative methodologies, such as Silva's 'window of visibility' approach, will reveal new and unsuspected patterns of a different nature.

Time-depth and Continuity

Many of the case studies unfolded in the chapters of this book remind us of the longevity of traditions that involve skylscapes and that reference events in the heavens. Closer dating of archaeological features and the extensive investigation of sites through modern approaches to excavation have expanded the picture still further. It is increasingly clear that in many parts of the Old World the appearance of the first monuments can no longer be associated with early farming communities. From Göbekli Tepe in eastern Turkey (Dietrich *et al.* 2012), to the stone menhirs of western France (Le Roux 2008), and the timber totems in the Stonehenge landscape of central southern Britain (Darvill 2006, 62–3) it is clear that hunter-gatherer communities made monuments too, and these most likely embrace and reflect prevailing cosmologies. Vince Gaffney and colleagues have suggested that the monumental alignment of 12 possible post-sockets set within larger pits at Warren Field near Crathes in Aberdeenshire, Scotland, first constructed *c.* 7800 BC and recut *c.* 4000 BC may be a calendrical structure of some kind using the local hills as a fore-sight (Murray *et al.* 2009; Gaffney *et al.* 2013). As Sims shows in his contribution to this book, features created in one phase can influence the development of later structures and this chronological/stratigraphic depth needs to be taken into account when defining patterns in the data. Continuity and change will be a major theme of skyscape archaeology in future and no doubt come to play a key part in understanding shifting cultural and religious attitudes.

It is not always necessary to look to the sky itself to understand the cosmologies and narratives derived from or related to skylscapes. Oral histories, traditions, folklore, and the anthropology of contemporary societies can be very relevant, and are well illustrated by the insights offered in several chapters here. Prendergast, for example, draws heavily on cross-cultural analogies to explore later prehistoric occupation sites in Ireland while Pritchard connects the apparent concern for the motion of the stars Vega and Deneb embedded in the outlook from the King's Quoit with swan imagery and transcriptions of the Welsh for swan (*yn alarch*) reflected in the recorded placename of Norchard. And Silva uses ideas of seasonal movements across the landscape transposed from modern transhumance practices in the *Serra da Estrela* to add meaning to the focus on Aldebaran for the living and the dead detected in the megalithic tombs of the area. All of these move the interpretative focus into new arenas by opening up possibilities for investigation.

Conclusion

The potential of bringing skylscapes centre-stage in archaeological thinking is considerable, and will add new textures, tastes, and sounds to reconstructions of the past. Problems of course remain, and several authors in this volume have struggled to overcome obvious limitations in their source datasets. Among the most intractable difficulties are the well-known hurdles of dealing with partial data, heavily damaged sites, inaccurate surveys, poor reconstructions, understanding the capabilities of technologies available to ancient cultures, and a poor or non-existent knowledge of the physical environment to inform questions of visibility and intervisibility. Some of these can be overcome through patient research and by focusing on sites and places for which high quality data survives and where observations can be replicated. There is also much to do in terms of scoping the dimensions of lived-in experiences of the world that the study of skylscapes could contribute to. This includes thinking about the cycles and frequency of skylscape-events. Short-term phenomena such as weather, cloud patterns, darkness, brightness, thunder, lightning, rainbows, swarms of flying insects, flocks of migratory birds, shooting stars, and colour rendering of the terrestrial environment are often unpredictable poignant and sometimes threatening experiences. Equally unpredictable in the ancient world, but of longer duration and impact, were visitations by comets, asteroid showers, and dust clouds. More predictable, fixed, and long-term are the risings, settings, and movements of the sun, moon, and stars. In much folklore it is the Milky Way that features strongly in creation myths and cosmological narratives, but perhaps because it is not so easily recognizable under light-polluted modern skies it rarely features in archaeological discussions and is another dimension that deserves further investigation. Whether in relation to the structuring of daily or seasonal routines, geomantic guidance for the location and position of special places, divination and prediction, or simply the evidential base underpinning mythical narratives and cosmologies the sky was an important domain that archaeology needs to understand better.

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