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INTEGRATING ARCHAEOASTRONOMY WITH LANDSCAPE ARCHAEOLOGY: SILBURY HILL – A CASE STUDY

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Abstract

Weaknesses in both archaeoastronomy and landscape archaeology can be overcome by their combination. This is demonstrated through a new interpretation of Silbury Hill in Avebury, Wiltshire. If monuments in their local landscape are considered as one choice in a system of alternatives, tests can be devised to interpret the prehistoric builders' intentions. This exercise finds that the builders chose a prescriptive arrangement of views of Silbury Hill to simulate a facsimile of the moon entering and returning from the underworld.

Key words: dark moon, crescent moon, paired alignments, Silbury Hill, West Kennet Avenue, Beckhampton Avenue, Avebury, underworld.

Introduction

Archaeoastronomy has to move on from the legacy of the Thom paradigm if it is to prove its relevance to science (Sims 2006). Over the last three decades the discipline has established robust field methods procedures and, in so doing, falsified Thom's claim for a prehistoric precision astronomy (Thom 1971; Ruggles 1999; Hoskin 2001, Belmonte 2006; Schaefer 1993; North 1996). It is now standard fare for archaeoastronomers to demonstrate whether ancient monuments have non-random alignments on the sun's solstices, the moon's standstills or astral alignments, all accurate at best to one-third of one degree. The question is: so what? Is it to be left to other disciplines like archaeology and anthropology to then interpret the meaning of such alignments (see Lankford 2007, p.1-19)? This paper suggests that an inter-disciplinary approach could achieve the breakthroughs that have so far eluded archaeology.

Silbury Hill

The archaeology of Silbury Hill

Silbury Hill (SH), one part of the Avebury monument complex in Wiltshire, England, is the largest prehistoric man-made mound in Europe. It is 37 metres high and designed in the shape of a regular truncated cone

with a level circular summit platform. To date, no convincing explanation as to its meaning has been offered. Archaeologists have long expected that excavating the interior of the hill would reveal burials or deposited artefacts that would provide the clues to its decoding. In spite of the many tunnels that have been dug, so much so that the Hill has now to be rescued from imminent collapse, no burials have been found nor interpretive breakthroughs made. Barrett suggested that SH, seen from other structures in the Avebury monument complex, is an elevated platform upon which a select few can observe and be observed (Barrett 1994, p.31). This would not explain why steps cut into the chalk from the causeway entrance travel *down* into the seasonal moat rather than up to the summit platform, nor why the Hill was built in the *lowest* part of the local landscape, or why some smaller structure might not have been built on the top of the equally high and adjacent Waden Hill.

The archaeoastronomy of Silbury Hill

Three different claims have been made for the astronomy of SH, all of which are found wanting by modern archaeoastronomical methods. Dames suggested that the west-east axial alignment Venus figurine shaped moat surrounding SH provided an agricultural calendar when, at the equinoxes, the sun and moon alternately rose and set from her moat vulva and into her

moat head. Dames further claims that a summer sunrise and winter sunset line doubled for the mid-winter and mid-summer mid-swing full moonrises and moonsets at inter-standstill years, and traced a line of azimuth through the base of the figurines spine towards the womb-head (Dames 1976, p.117-176). All of these claims are made to fit a plan diagram which conflates a viewing platform at 187 metres above sea level with a moat level at 149 metres beyond to distant horizons with no contemporaneous foresights. While lines on a plan diagram may be made to intersect anthropomorphic qualities invested in a watery figurine, no such line exists for an observer nearly 40 metres above the level of the winter fosse which surrounds SH. All of these claims are better explained as the *post festum* findings of a problematical mother-goddess model. North (1996) has suggested that from the base and final summit of SH, astral alignments on the risings of Sirius and Rigel respectively would have been seen over the nearby East Kennet Long Mound. This may be so, but then SH is surrounded by one of the greatest concentrations of mid-Neolithic long mounds and Early Bronze Age burial mounds in the world, and it would not be a surprise if just one of them could be found by chance to have a horizon alignment from SH on a single asterism. Lastly, Devereux (1991) has claimed that the terrace feature 4-5 metres below the level of the summit platform allowed a repeat viewing of summer solstice sunrise over the adjacent Waden Hill. But since the terrace is most elaborated to the north of the summit surround, not to the north-east, and since no markers exist either as backsight on SH or as foresight on Waden Hill, then it is simpler to assume that the terrace had some other function. Beside these three claims, archaeoastronomy has not been able to find any significant solar or lunar alignment upon SH from any of the three main circular enclosures that make up the monument complex (West Kennet Palisades, the Sanctuary or the Avebury Circle).

The landscape archaeology of Silbury Hill

Neither archaeology nor archaeoastronomy have so far succeeded in interpreting SH. It offers a further paradox – it is placed roughly in the middle of a monument complex from which views of SH are intermittently obscured by intervening hills (Fig. 1). It's location is especially curious when considered against the landscape just north of the Avebury circle, which offers an almost perfectly level plain and which leads to the flanks of the ancient venerated site of the Windmill Hill causewayed enclosure. Central place theory would predict that this would be an ideal location for an elevated viewing platform, upon which local ritual specialists could out-pomp visitors from the nearby Marden,

Stonehenge and other monument complexes. If we put this paradoxical property at the centre of our inquiry this constrains both archaeoastronomy and landscape archaeology to operate on a higher level than when each is used in isolation.

Archaeoastronomy has mainly adopted a statistical approach in dealing with the problem of intentionality – are alignments in prehistoric structures random or by design? By aggregating regional groups of monuments with identical design, and using rigorous scaling procedures for identifying sightlines, the distribution of deviations from these grouped alignments against randomly generated lines of sight provides statistical tests to guard against the over-interpretation common to the discipline in the 60's and early 70's. This methodology has established that not only did five regional groups of monuments in late Neolithic and Early Bronze Age British Isles have solar and lunar alignments, albeit at levels of precision of at best one-third of one degree rather than Thom's claim of one second of arc, but that 322 of them had paired alignments which bracketed the winter solstice sun with the southern standstill moons (Ruggles 1999). However, this method cannot begin to deal with the unique and outstanding monuments that represent the culmination of this megalith building culture, like Newgrange in Ireland, and Avebury and Stonehenge in Wiltshire, each of which are one of a kind. Landscape archaeology, on the contrary, specialises in studying in great detail the landscape context of an individual monument in their intimate association. The work of Tilley, in particular, sensitises us to the embodied experience of walking around and through the monuments, and how this experience is subtly manipulated by views and perceptions which are modified by our landscape location as we move through them (Tilley 1994). However, unlike in archaeoastronomy, which has developed rigorous selection criteria for what can and can't be admitted as data, Tilley's phenomenological approach has been severely criticised for „...a version of landscape archaeology which is much more dependent on rhetoric, speculation, argument by assertion, and observation not always replicable when checked“ (Flemming 2005, p.930). If we can devise a method that combines the particularity of Tilley's landscape archaeology, but combines it with the rigour of robust selection criteria now standard in archaeoastronomy, then the combined methodology should assist a decoding of unique monuments like SH.

The Avebury monument complex assists such an enterprise, since it prescribes through its two avenues of parallel rows of stones (West Kennet Avenue and Beckhampton Avenue, marked 3 & 5 respectively in Fig. 1) the ritual routes processions would have

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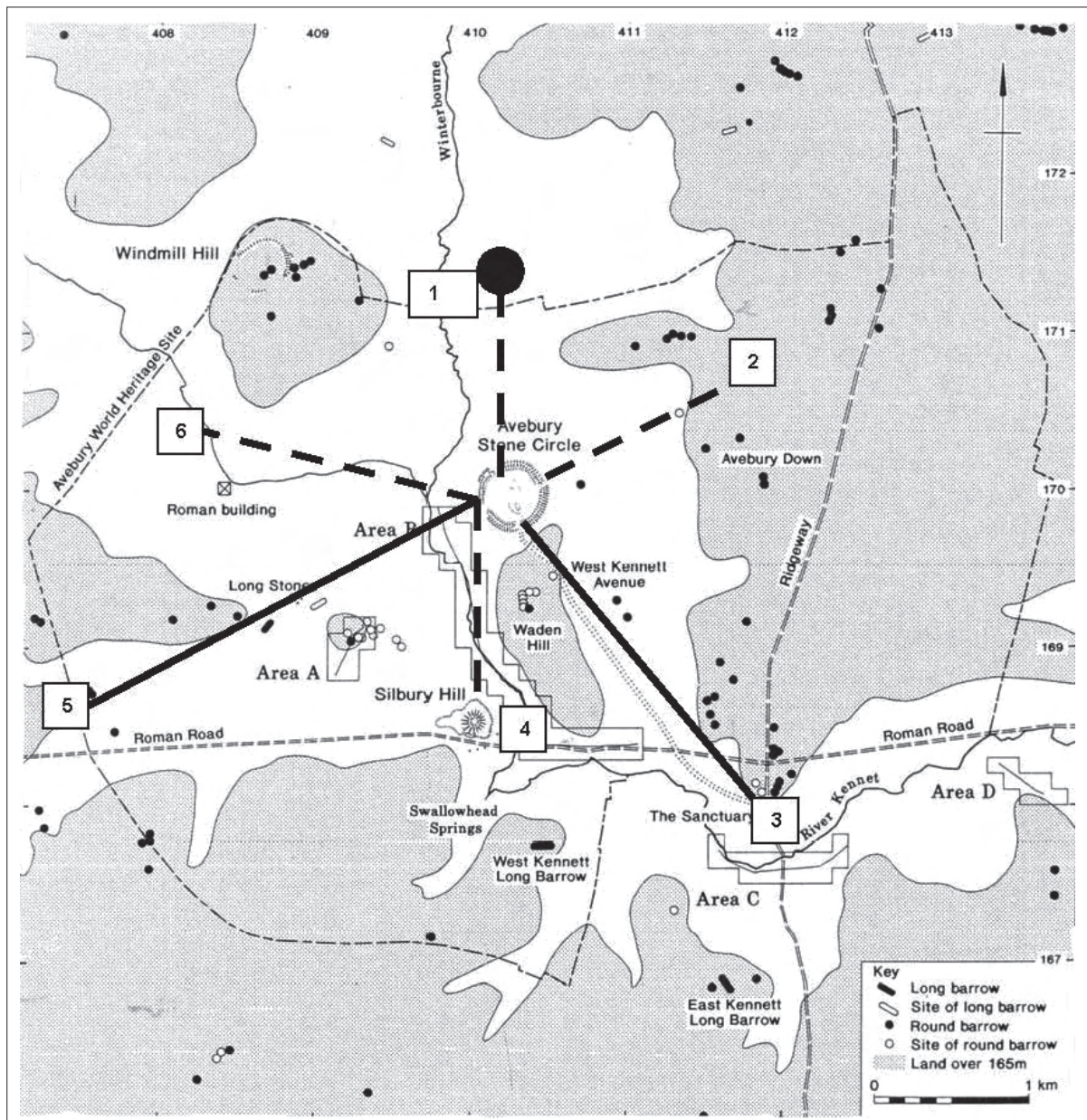


Fig. 1. Avebury Complex with schematic Avenues, including other possible Avenues and SH location given (a) the position of Avebury circle and (b) landscape variation. (Adapted from Powell 1996, p. 11).

travelled in the late Neolithic and Early Bronze Age. But to guard against the limited interpretations these actually chosen routes might suggest to our subjective experience, we can consider the landscape as a region of variability, in which many other opportunities were simultaneously available but actually not taken by the monument builders. For this procedure we assume that the level of technological expertise, amount of labour power available, architectural design, landscape and, in this case, Avebury Circle, are all held constant. We introduce variability by considering all of the logical possible alternative routes for the two Avenues and location for SH which would exhaust the properties of the local landscape which participants could embody. This is not an arbitrary procedure. For example, it is not the

case that there could be as many alternative Avenues as degrees to a circle emanating from Avebury Circle. We choose only, but all, of those alternative routes that offer a *qualitatively* different aspect of SH when walking towards or away from Avebury circle (1,2,4 & 6 in Fig.1). If this procedure is fruitful, then our expectation is that the chosen routes for the two avenues at Avebury were selected against all of the logical alternative routes precisely because they offered a unique suite of views required for the ritual practiced at this site. If we cannot find a unique portfolio of views which are also consistent with known properties of the monument, then this exercise will have severely qualified the phenomenological approach in landscape archaeology.

Landscape as a region of alternatives

It can be shown (Sims 2009) that the chosen combination of Avenues offer more and systematically different views of SH compared to all other logically possible pairs of avenues, and for whether SH is located on the flat plain north of Avebury Circle (at end of avenue 1 in Fig. 1) or in its actual location near to the southern end of Waden Hill. This exercise reveals that the monument builders wanted a pair of avenues that skirted SH at a roughly constant distance, and for which for over 70% of their length all views of the hill were completely obscured by two intervening hills (Waden Hill, and a ridge centred on Area A on Fig. 1). The builders would have had no difficulty in locating either SH or the avenues on the flat plain north of Avebury Circle, or to have routed the avenues directly towards or away from a SH built in either location. The only conclusion to be drawn is that the builders *intended* viewing SH not in analogue mode, in constant view and growing or diminishing in size with directly approaching avenues, but in digital mode as carefully selected views at a distance from five key positions in the monument complex separated by long sections of the Avenues in which all views were obscured. At the start of Beckhampton Avenue (5 in Fig. 1) SH can be seen with its summit platform protruding above the background eastern horizon; from where the Beckhampton Avenue crosses the River Winterbourne just to the west of the Avebury Circle, the level summit platform exactly coincides with the level of the background horizon to the south; from stone i of the D feature in the centre of the inner southern circle within Avebury Circle, looking to the south-south-west the cropped top of SH protrudes above Waden Hill; processing around the rest of the stones of the D feature, this cropped top gradually slips below the lip of Waden Hill; at the Obelisk stone, at the apex of the D feature, and the largest stone in the Avebury complex, the top of SH is obscured by the large blocking stone 102 of the southern inner circle; and finally, from the Sanctuary the top of SH is again exactly in line with the background western horizon. These are the only seven views, from five positions, prescribed by the architecture of the late Neolithic and EBA Avebury complex. For the rest of their lengths SH cannot be seen from the Avenues.

Integrating archaeoastronomy and the phenomenology of landscape

Davies and Robb (2004) have suggested that behind the many particularistic references archaeologists have made to an underworld lies a more general theme. They demonstrate that features such as caves, rock fissures, sink holes, flint mines, shafts, tree-throw hollows,

ditches, pits, springs, bogs, rivers, lakes and post and stone holes have been interpreted as portals to the underworld. In their exploration of archaeologist's under-interpretation of this verticality dimension, that show that many of these features, and others such as burial mounds and ditch banks, can be seen as designed as if they were being viewed from the underworld. Surprisingly they do not extend the dimension of verticality to the above world. Most of the astronomical alignments found by modern archaeoastronomy are to the western horizon, on the settings of stars, moon and sun (North 1996; Ruggles 1999). This is counter-intuitive to the expectation of observational astronomy, but entirely consistent with the religious requirement to mark the horizon portals to the underworld. Extending this insight to the seven prescribed views of SH seen from the Avenues and southern inner circle at Avebury, there is only one empirical entity that fits the condition of a chalk white crescent scarp that to the east is proud of the horizon, to the south and west is level with the horizon, and from the Avebury circle sinks on the south-south-west horizon and is occulted by a blocking stone. That entity is the moon in its waning crescent before sunrise, its dark moon occultation, and its waxing crescent sets – namely those phases before, during and after dark moon. Since the Avebury circle has been shown by North (1996) to have a paired alignment on the winter solstice sunset and the southern major moonset, Ruggles (1999) has shown that the same combination of alignments can be found at over 322 other stone structures of the period, and as these combinations always generates dark moon at winter solstice (Sims 2006, 2007), then this model of SH is an extension of the concept of the underworld consistent with other known properties of the Avebury monument complex.

One final comment needs to be made. Davies and Robb imply that monument structures can be visualised as membranes not just *to* the underworld, but *from* the underworld. The specific design properties of a monument might then also be perceived as if it were being viewed *from* the underworld. We can extend this insight when we consider the seven views prescribed by the Avenue routes and Avebury Circle. If our hypothesis that the scraped clean chalk wall of the upper terrace on SH is a representation of the rising and setting crescent moon is correct, and if from two places along the Avenues we see this crescent of chalk to be level with the background horizon – then we are witnesses to a moon that *is in the underworld*. More than that, if we as ritual participants can observe the moon in the underworld, then this representation immediately places us along with the moon in the underworld. *As an embodied experience, it shifts us from this world to the underworld.*

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Seen this way, one function of the Avebury monument complex is, by interaction with the local landscape, to simulate a journey into, through and back from the underworld by building a facsimile of the moon entering and returning from the underworld.

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ARCHEOASTRONOMIJOS IR KRAŠTOVAIZDŽIO ARCHEOLOGIJOS JUNGTTIS: SILBURY HILL ATVEJO ANALIZĖ

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Santrauka

Priešistorinių paminklų archeoastronominė interpretacija patiria daugiau sunkumų, kai susiduriama labiau su išskirtiniais vietos kraštovaizdžio ypatumais nei su astronominėmis orientacijomis. Vyraujanti regioninių paminklų grupių statistinio apdoravimo metodologija netinka tokiems unikaliems paminklams kaip, pvz., Avebury Viltšyro (Wiltshire) grafystėje. Tilley (1994) kraštovaizdžio fenomenologija tiksliai apibrėžia konkretaus paminklo interpretacijas to paminklo kraštovaizdžio kontekste. Vis dėlto Tilley buvo smarkiai kritikuojamas dėl kraštovaizdžio ypatumų atrankos ir iš to išplaukiančių metaforinių prielaidų (Flemming 2005). Straipsnyje pateikiama detali Silbury Hill analizė kraštovaizdžio ir vėlyvojo neolito – ankstyvojo bronzos amžiaus paminklų kontekstuose atskleidžia, kad su abiejų metodų problemomis gali būti susidorojama pasitelkus antropologinį Saulės ir Mėnulio jungties modelį.

Siekiant išvengti interpretacijų apie išlikusias kiekvieno paminklo struktūras ribotumo, tam tikrą kraštovaizdį galime laikyti kintančiu ir kartu teikiančiu daugybę įmanomų galimybių, kuriomis tų paminklų kūrėjai nepasinaudojo. Laikėmės prielaidos, kad technologinės kompetencijos lygis, prieinamos darbo jėgos kiekis, architektūrinis stilius, kraštovaizdis ir – šiuo atveju – Avebury ratas buvo pastovūs. Kintamumą įvertinome, nagrinėdami visas logiškai įmanomas alternatyvias dviejų alėjų kryptis ir Silbury Hill vietas, susijusias su tam tikromis landšafto detalėmis, kurios galėjo būti panaudotos įkūnijant tam tikras ritualams svarbias idėjas. Iš alternatyvių kryptių nagrinėti pasirinkome tik tas, kurios teikė kokybiškai kitokį Silbury Hill aspektą einant link arba iš Avebury rato. Jei šis metodas pasiteisintų, būtų patvirtinta mūsų idėja, kad dviejų Avebury alėjų kryptys buvo tikslingai pasirinktos iš įvairių galimų, nes atitiko kompleksą vaizdų, reikalingų šioje vietovėje atliekamiems ritualams.

Bandymai atskleidė, kad iš šių alėjų buvo matoma tik Silbury Hill viršutinė terasa, kuri taip įrengta tam, kad nurodytų į besileidžiančio Mėnulio pjautuvą. Dviejoje alėjų vietose antrojo plano horizonte yra matomas kreidinis pjautuvas – meninė priemonė, kuri liudija mums Mėnulio nusileidimą ir jo buvimą požeminiame

pasulyje. Manome, kad šia prasme viena iš Avebury paminklų komplekso ritualinių funkcijų galėjo būti kelionės į požeminį pasaulį ir sugrįžimo iš jo imitavimas, derinant vietos kraštovaizdį ir Mėnulio pozicijas.

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