“The Archaeology of the Sky”, 26th August, 2020, Organised by Emília Pásztor (Hungary) and Marc Frincu (Romania). Session 63 of the European Association of Archaeologists: 26th EAA Virtual Annual Meeting, 24th–30th August 2020 #Networking

Ingrid O'Donnell

Bournemouth University, UK
iodonnell@bournemouth.ac.uk

“The Archaeology of the Sky” was scheduled as one of the first few sessions to launch the 2020 Scientific Programme of the European Association of Archaeologists Annual Meeting for 2020, starting at 9 am Central European Summer Time (8 am in the UK). This early scheduling did not present a problem for this reviewer, who remains eternally grateful for the many benefits with respect to transport, accommodation, carbon footprint and cost that accompany virtual online attendance, but there were clearly technical teething problems apparent throughout this initial conference session. These were resolved admirably by the session technical support, but delays to the session schedule were inevitable and one consequence was that there was little opportunity for discussion amongst session participants or to question the presenters. Another was that Emília Pásztor became the sole moderator of this technically challenging and lengthy session, scheduled for six-and-a-half hours – an unenviable job, which she handled deftly. She certainly had to do some thinking on her feet to re-order some presentations depending on which presentations were easily uploadable at the time – and this quick thinking probably resulted in the session as a whole not overrunning the allotted time

schedule. Technical challenges aside, this session included a fascinating and diverse series of presentations that had skylscapes and skyscape archaeology at their core.

Emília Pázstor's introductory presentation, "The Archaeology of the Sky – Introduction", asked: "how do we interpret objects relating to the sky and celestial phenomena?" She emphasised that the "role of the archaeologist is not only to discover, classify and describe the finds, but also to investigate what people thought of the world around them; how they imagined its creation and functioning." Her paper referred to the ubiquitous symbols for light adorning Bronze Age artefacts throughout the Carpathian Basin and central Europe and highlighted the fact that these symbols were not only direct representations of the Sun and Moon, but also symbols for a wider range of light phenomena, such as parhelia (both solar and lunar) and Sun columns. She stated that identification of light symbols can assist archaeologists in identifying ritual objects and possibly their social function – for example, providing light for the deceased on their long journey to the netherworld. Her beautifully illustrated presentation was highly engaging and drew praise from the audience via the online "Chat" facility.

Yann Lorin, who presented "Watch the Sky", gave an interesting talk on his research on Middle Bronze Age (MBA) and early Iron Age (IA) looms from across Europe which were decorated with similar celestial cosmological motifs, including Sun wheels and solar boats. He proposed an interesting connection between loom function and cloth generation with cosmological celestial symbology and emphasised the similarities of such symbology; suggesting, for example, that across Europe, Sun wheel motifs are representative of parhelia.

The discussion of solar symbology continued with the next presentation, "Derived from the Sun – Horses, Swans and What Else?" by Attila Mrenka, who examined why solar symbology, which had been ubiquitous across the Early Bronze Age, MBA and Late Bronze Age (LBA) in Hungary, seemed to disappear over the LBA to early IA transition. He presented evidence to show that such symbology did not actually disappear, but was merely transformed to representation on alternative objects and in different ways. He concurred with the previous speakers that the Sun was a central cosmogonic symbol for the people of the MBA across Europe, suggesting that the journey of the Sun represented the renewal of daily life.

Marc Frincu then presented a fascinating paper, "Revisiting Sevsar: Towards a Possible Gnomon in the Armenian Highlands". This research had been conducted by himself and Raul Perez-Enriquez, who provided some further insight into the mathematics underlying the calculation of the gnomonic factor at the close of the session, in response to a question from the audience. First, however, Frincu described a petroglyph comprising a spiral with three outer concentric circles, interrupted by dashes, surrounding a central cupmark around 5 cm diameter and 5 cm deep, and which may have held a pole. The petroglyph has been designated as LBA and is located high in the Sevsar Mountains, at 2700 m altitude, with no settlements nearby. Previously, it has been suggested that the petroglyph might represent a sky map or observatory or even a meteor impact. Frincu explained that their research has discovered that if a pole is placed in the cupmark then the ratios of the lengths of the shadows it creates at summer and winter solstices and equinoxes correlate

with the ratios of the radii of the concentric circles. Such an observation is indicative of a high level of knowledge amongst the constructors of the petroglyph. Further details of this exciting research are presented in the present issue of *JSA*.

Alexandru Dorogostaisky, with assistance from Frincu as co-researcher, presented "An Archaeoastronomical Perspective on Two Similar LBA Tumulus Necropolises from Romania". Both tumuli are large and appear to demonstrate summer solstitial rise and set connections with two local mountain peaks. Furthermore, one of the mountains, Satra Pintii, has a tumulus shape and in local folklore is said to have been made by angels. The double solstitial alignment significantly increases the statistical probability for an intentional placement of the necropolis, indicating the potential for a summer solstitial role in local funerary rituals. However, the conclusion reached by this research was that "the distribution of Bronze Age settlements in the area, the placement of the site at the crossing of two major valleys in the area, as well as the fact that the alignment is not precise [...] seem to indicate that astronomy was not the sole reason for choosing the location". It is reassuring to see such careful consideration given to all factors before firm conclusions are drawn, and such a considered approach will benefit the confidence associated with the field of skyscape archaeology in the long term.

From Eastern Europe we moved to Scotland with Gail Higginbottom's paper, "Megaliths on Islay, Scotland: An Island Divided". She noted that all the sites (standing stones) she studied are located in natural amphitheatres. The main conclusion of her research indicates support for clustering of directionality, with specific clusters associated with different island locations – for example, for Islay and Jura she reported that all alignments tended to favour the minor lunar extremes and equinoxes over major lunar extremes and solstices (noting that the opposite is true for Mull and Argyll). However, she then went on to interrogate these findings on Islay more closely, discovering that the declinations of the minor lunar extremes are very similar to the declinations for the equinoctial rising and setting of the Moon during the Neolithic and Bronze Age (as previously described by Silva and Pimenta 2012). Other identified alignments correlated with declinations associated with Capella: normally a circumpolar star, because of the high-altitude horizons at Islay, it can be seen to rise and set there. From this research she concluded that the relevance of the Moon to the monument builders was its yearly and seasonal cycles, rather than its phases. The association of different celestial targets for monuments located in different regions of the same wider geographical area is intriguing.

Another presentation looked at the wider area of Britain and Ireland. Terence Meaden's talk was entitled "A Major Success for the Principles of Archaeoastronomy: Interpreting the Planning of the Stone Circles of Ireland and Britain". To justify the bold claim of this title, he gave an engaging presentation reporting the results of his research at nearly 100 stone circles across Britain and, in particular detail, Ireland, where his findings at Drombeg Stone Circle were key to the formulation of his hypotheses. These revolved around the observation of the interplay of shadows formed by the stones over the course of a year, leading him to conclude that the purpose of Drombeg Stone Circle was a complete calendar for the Irish megalithic age, with key shadows giving rise to all eight dates of the traditional farming year (solstices, equinoxes and cross-quarter days).

Furthermore, his identification of "male" and "female" stones (due to their proposed respective phallic and vulva shapes) and his observations of the casting of shadows from male stones onto female stones at certain times of year, led him to state that "[t]his male-female union implies male-female consummation. It indicates a fertility religion". The photographs he provided of this phenomenon were convincing and it would have been interesting to see what the audience thought of these bold suggestions, had there been the opportunity for discussions and questions. Presentations like this highlight the rich diversity of thought present in today's skyscape archaeology studies, and emphasise the fact that basic concepts, as well as complex mathematical equations, can all have a role to play in interrogating the monuments and cultural astronomy of the past.

Mariusz Ziolkowski moved us to South America with his "Astronomical Observations at Machu Pichu (Peru): Facts, Hypothesis and Wishful Thinking", which reported the findings of the research carried out by himself and his co-researcher, Jacek Kościuk. They re-examined the previously suggested possible astronomical functions of some of the structures of the Llaqta of Machu Pichu, in particular the Intihuatana, the Torreón and the Intimachay Cave. Their findings indicate that whilst such functions have proved difficult to elucidate for some structures such as the Intihuatana, for others, such as the Intimachay Cave and also the Mirador de Inkaraqay, it was possible to confirm and extend the knowledge of the astronomical functions associated with these sites; the latter appeared to be constructed solely in order to observe the Sun, the Moon, the Pleiades and potentially Venus. The potential for astronomical alignments of ceremonial sites over long distances across the Inca Empire was raised as a tantalising possibility and hint at the direction for further work.

These research presentations were punctuated by a theory paper which examined the founding and continuing role of skyscape archaeology in the academy today. Liz Henty, co-editor of *JSA*, presented her thoughts on "Skyscape Archaeology: Bridging the Gap between Archaeoastronomy and Archaeology". She explained how the concept of skyscape archaeology was conceived by herself and Fabio Silva in separate papers in 2014 (Henty 2014; Silva 2014) as a new field – bridging cultural astronomy and archaeoastronomy in order to address questions of belief, cosmology and ritual that archaeoastronomy alone is unable to address. The resulting holistic methodology advocated within skyscape archaeology combines a thorough examination of data derived from archaeological and archaeoastronomical methods together with phenomenological and reflexive approaches to research. She maintained that whilst the advantages to this approach are obvious, most archaeologists and prehistorians seem reluctant "to consider the cultural impact of the skyscape in their investigations and fail to understand the sky symbolism embedded in monumental constructions". To demonstrate the advantages of the interdisciplinary skyscape archaeology approach she gave an interesting overview of her own research at Tomnaverie Recumbent Stone Circle in Scotland, linking it with that previously conducted by Richard Bradley, and concluded that archaeoastronomical findings must fit the known archaeology.

Zoltan Mitre gave the next talk, "Hat Rock as a Possible Sun Shrine During the Late Bronze Age and Early Iron Age Period". Hat Rock is a distinctive geological feature located in the Hungarian Kőszeg Mountains adjacent to the Amber Road in the valley of the

Gyöngyös river. During the time period in question, this region was a powerful industrial and trading centre. Attractive photographs were presented of this mysterious-looking rock to demonstrate its alignments with summer and winter solstices across prominent horizon features, and archaeological finds at the rock site were reported to demonstrate the significance of this natural feature over the Bronze Age and IA periods. The possibility of further astronomical associations, such as with the Pleiades and Venus, was also mentioned. This presentation gave rise to interesting comments in the online chat box, with Andy Burnham (the admirable technical support assistant for the session) expressing particular interest in including an entry for Hat Rock in his Megalithic Portal website, as apparently Hungarian entries are currently sparse.

Artur Anyiszonyan then presented this reviewer's favourite talk of the day, "The Enigma of the Carolinian Sidereal Compass". He explained that the Caroline Islands are coral islands which cover a vast area of Micronesia. Indigenous navigation knowledge is under serious threat, but currently it remains "one of those few places where autochthonous navigational knowledge survive[s] more or less intact up until today". What is fascinating about the local navigational system is that nothing is written down and the basis for navigational knowledge is a mental construction of the sidereal compass based upon the rising and setting points of 32 reciprocal pairs of stars (i.e. stars separated by 180° of azimuth when rising or setting). Due to the latitude of the islands, the rising and setting of stars occurs almost vertically on the horizon, so even if a star is some way off setting, the horizon setting point can be estimated easily. However, twentieth-century accounts of the Carolinian Island navigation system contain obvious flaws and contradictions. Primarily, the reciprocal pairs of rising and setting stars (with the exception of Crux in the south and Polaris in the north) are not anywhere near a precise 180° in opposition. This can be seen to present problems for anyone aiming to sail a boat towards or away from any specific star of a reciprocal pair – how could the sailors get back to their point of departure, if the reciprocal stars are not exactly 180° in opposition? The solution proposed by Anyiszonyan is that the reciprocal pairs of stars should not be viewed as marking a specific point on the horizon, but instead should be considered to mark a horizon segment: both the star in front and the star behind could be used to ensure that the vessel is steered consistently towards the desired middle of the horizon segment and, in this way, marine navigation is facilitated. The talk was dedicated to an indigenous Carolinian mariner who had been influential in passing on this navigational knowledge to the next generation.

The final two talks of the session were by Aleksandra Bajic: "Portara from Naxos – the Celestial Gate" and "Delos, the Centre of Apollo's Cult – An Archaeoastronomic Perspective". Both examined late first-millennium BC monumental sites of the Cyclades, linking archaeoastronomical observations of that period with the known Greek mythology of Apollo and Dionysus and the timing of their annual festivals. Both talks linked well with previous presentations: gnomonic factors were discussed for the temple at Delos, reflecting the previous discussion of gnomons by Marc Frincu and Raul Perez-Enriquez, whilst the obvious interdisciplinary approach, with reference to archaeology, mythology

and archaeoastronomy, conformed well to Liz Henty's recommended skyscape archaeology methodology, further demonstrating the benefits that such an approach can offer.

Marc Frincu concluded the session by noting that the emerging field of skyscape archaeology continues to evolve. He emphasised the essential requirement that all conclusions should be carefully grounded in fact, and this will enable skyscape archaeologists to contribute valuable analyses of very interesting sites, such as those presented at this session. Overall, this was a highly interesting and varied session, where the possibility of the papers being collected and published by Springer is under consideration. For this reviewer, the benefits of virtual attendance outweighed any technical teething problems with the online presentation, as the cost and time commitment involved with travel would have been prohibitive. It is hoped that future conferences will always seek to offer the option of attending virtually.

References

- Henty, L., 2014. "The Archaeoastronomy of Tomnaverie Recumbent Stone Circle: A Comparison of Methodologies". *Papers from the Institute of Archaeology* 24: 45–59. <https://doi.org/10.5334/pia.464>
- 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: A Journal of the Society for American Archaeology* 1 (2): 24–37. <https://doi.org/10.7183/2326-3768.2.1.24>
- Silva, F. and F. Pimenta, 2012. "The Crossover of the Sun and the Moon". *Journal for the History of Astronomy* 43 (2): 191–208. <https://doi.org/10.1177/002182861204300204>