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Skyscapes, Cosmology and Archaeology (AHAN7043)

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Assignment 1: Critical Review

Option 1: Chankillo, Peru

- Ghezzi, I. and C. Ruggles (2011) “The Social and Ritual Context of Horizon Astronomical Observations at Chankillo.”
- Malville, K. (2011) “Astronomy and Ceremony at Chankillo: an Andean Perspective.”

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I hereby declare that the materials contained in this essay are entirely the product of my own work, that sources used are fully documented and that the whole has not previously been submitted for any other purpose.

Introduction

This essay will critically review two papers submitted at the “Oxford IX” International Symposium on Archaeoastronomy in 2011, organized by ISAAC.

The first work is a paper by Iván Ghezzi and Clive Ruggles titled ‘*The social and ritual context of horizon astronomical observations at Chankillo*’¹.

The second work is a paper by J. McKim Malville titled ‘*Astronomy and ceremony at Chankillo: an Andean perspective*’².

Chankillo in the methodological debate in archaeoastronomy

The authors of both papers address the archaeoastronomical evidence, intentionality and meaning, and cultural implications at the Chankillo site near the Casma-Sechín river basin in Peru.

In 2007, Ghezzi & Ruggles proposed that in particular the Thirteen Towers along a low ridge at Chankillo provide evidence of astronomical alignments and solar observations³.

The two papers form together an instance in a scholarly debate in the fields of archaeoastronomy and cultural astronomy related to methodological and interpretative issues.

This debate goes back to the Oxford I symposium in 1981, at which the two schools of thought and practices in archaeoastronomy were brought together: the ‘green’ archaeoastronomy, lacking ethnographic material to interpret findings and focussing on scientific rigour and

¹ Ivan Ghezzi and Clive L. N. Ruggles, ‘The social and ritual context of horizon astronomical observations at Chankillo’, “*Oxford IX*” *International Symposium on Archaeoastronomy*, Proceedings IAU Symposium No. 278, 2011, Clive L. N. Ruggles, ed.

² J. McKim Malville, ‘Astronomy and ceremony at Chankillo: an Andean perspective’, “*Oxford IX*” *International Symposium on Archaeoastronomy*, Proceedings IAU Symposium No. 278, 2011, Clive L. N. Ruggles, ed.

³ Ivan Ghezzi and Clive Ruggles, ‘Chankillo: A 2300-Year-Old Solar Observatory in Coastal Peru’, *Science* 02 Mar 2007: Vol. 315, Issue 5816, pp. 1239-1243

methodology, and the ‘brown’ archaeoastronomy, drawing on broader historical records and social elements, but more subjective in the interpretations it provides.

Throughout the evolution of archaeoastronomy in the decades following Oxford I, Ruggles states that “*Archaeoastronomy is a field that has been struggling with its identity*”⁴.

Summary

The Thirteen Towers at Chankillo run broadly on a north-south axis (Tower #1 is the most northern tower, Tower #13 the most southern), they are regularly spaced and they vary in height to compensate for variations in elevation, thus creating a smooth “false horizon”.

Ghezzi & Ruggles propose *a priori* observation points to the east and the west of the Thirteen Towers. The argument for the western observation point is based on specific architectural elements of a structure called the “Observation Building” and is supported by archaeological evidence pointing to a significant ritualistic meaning of passing through an external corridor to arrive at the observation point. The eastern observation point proposed fits with the foundations of a small underground structure. From these observation points, Ghezzi & Ruggles present the results of a Total Station survey in 2010, showing that the row of Thirteen Towers indeed does span the rising and setting arcs of the sun throughout the year, however with some inconsistencies.

Ghezzi & Ruggles also propose that the Towers could have been used for landscape timekeeping in order to regulate a ritual calendar.

In conclusion, Ghezzi & Ruggles combine their archaeoastronomical findings with archaeological evidence to conclude that the leaders at Chankillo would have used their

⁴ Clive L. N. Ruggles, ‘Pushing back the frontiers or still running around the same circles? ‘Interpretative archaeoastronomy’ thirty years on’, “*Oxford IX” International Symposium on Archaeoastronomy*, Proceedings IAU Symposium No. 278, 2011, Clive L. N. Ruggles, ed., p. 2

astronomical knowledge and access to the restricted observation points, as a way to consolidate their political power and social status, leading to growing inequality in the society.

Malville provides an overview of the origins and evolution of Central Andean culture by placing the oldest Central Andean sites along the Peruvian coast, from where trade routes expanded towards the highlands, up to Chavín de Huántar. The movement from the coastal regions through the Casma Valley up to Chavín, involved ascending and descending the mountains of the Cordillera Negra and Blanca, making ascent and descent key motifs in Andean cosmology.

Malville then considers the Thirteen Towers in the context of this cultural and cosmological foundation by emphasizing the double stairways on each Tower. The double stairways are linked to the interior staircases of the underground galleries at Chavín, leading Malville to propose that they have a ritualistic character, bringing the participants in procession “*from the terrestrial to the solar realm*”⁵ when ascending the towers.

Malville considers the astronomical alignments at Chankillo to emphasize the solar axis of the site and its alignment with both June solstice sunset as well as December solstice sunrise. On the other hand, an exclusively astronomical interpretation of the Thirteen Towers is not supported because (1) Andean cosmology does not consider the concept of a solar observatory, as opposed to the concept of ascent and descent, (2) the inconsistencies in the astronomical alignments, and (3) the even spacing of the Towers, making them inappropriate to regulate a meaningful ritual calendar throughout the year.

Analysis

The argument made by Ghezzi & Ruggles for the western observation point is supported by strong cultural and archaeological evidence, and further strengthened by the perfect alignment

⁵ Malville, ‘Astronomy and ceremony at Chankillo’, p. 158

of Tower #13 to the December solstice sunrise. For Malville, the lack of alignment from this viewpoint between Tower #1 and the June solstice sunrise however weakens significantly the case for an astronomical interpretation of the Thirteen Towers.

Ghezzi & Ruggles note this misalignment, but hypothesize that it could be intentional, by introducing the natural hill in the background as the leftmost 'tower' in the overall construction, which is supported by the archaeological find of a fertility offering in the northern staircase of Tower #1 and by its linkage to the June solstice harvest festivals. Malville on the other hand proposes that this particular offering supports the recognition of the Thirteen Towers as huacas, which played an important role in Central Andean cosmology, rather than strengthening the argument for an astronomical interpretation.

Contrary to the case for the western observation point, Ghezzi & Ruggles do not provide strong evidence for an *a priori* selection of the eastern observation point. The first selection proposed has to be corrected *a posteriori* in order to provide an alignment of Tower #1 to the June solstice sunset. A major weakness for the selection of this position as a significant observation point is that Tower #12 and Tower #13 cannot be viewed, and that an alignment to the December solstice sunset cannot be established.

In addition, the even spacing of the Towers makes it difficult to understand how they could function as a ceremonial calendar, as the gaps do not mark equal time intervals throughout the year.

Ghezzi & Ruggles note these misalignments and calendric difficulties but consider that broader contextual arguments might offer an explanation. However, the provided contextual evidence for their meaning from an ethnographic point of view is limited.

Malville's approach towards understanding the significance of the Thirteen Towers is a "*thick description of human behaviour*"⁶. From the description of the origins and cosmology of the Andean culture, well-argued by ethnographic and archaeological references, Malville presents an *emic* argument for linking the Thirteen Towers to the key concept of ascent and descent in Andean cosmology. This provides strong evidence to the symbolic meaning of the towers as mountains being ascended and descended in ritual processions.

Malville also provides strong evidence for the astronomical alignment of the solar axis of the Chankillo site as a whole to the December solstice sunrise and June solstice sunset. As for the astronomical interpretation of the Thirteen Towers, Malville gives an overview of the errors in alignment and concludes that the Thirteen Towers should not be considered as a "solar observatory" but rather should remain embedded in their proper time and place to arrive at an appropriate interpretation.

Similar reflections were made by Ruggles in 1999 when providing a deeper context for "*prehistoric astronomy*"⁷ and by Iwaniszewski in 2010 related to the Group E complex in Uaxactun, Guatemala, which was considered to be one of the oldest Mesoamerican "*astronomical observatories*"⁸.

⁶ J. McKim Malville, 'Meaning and Intent in Ancient Skyscapes – An Andean Perspective', in *Skyscapes; The Role and Importance of the Sky in Archaeology*, Fabio Silva and Nicholas Campion (eds.), Oxbow Books, Oxford, 2015, pp. 1-7

⁷ Clive Ruggles, 'Astronomy in Prehistoric Britain and Ireland', Yale University Press, New Haven and London, 1999, pp. 79-81

⁸ Stanisław Iwaniszewski, 'Ancient Cosmologies; Understanding Ancient Skywatchers and their Worldviews', *Journal of Cosmology*, July 2010, Vol 9, pp. 2121-2129
<http://journalofcosmology.com/AncientAstronomy117.html>

Conclusion

The two papers illustrate the methodological and interpretative difficulties with which archaeoastronomers are faced when linking evidence, intentionality and meaning to identified astronomical alignments.

Even though they arrive at different conclusions, both papers provide ways forward on how to arrive at a better understanding of the cultural processes underlying the significance of Chankillo: the need for a multi-disciplinary approach and for the consideration of a broader context of the identified astronomical alignments within the relevant period and culture.