

Is There a Conflict between Archaeology and Archaeoastronomy? An Astronomer's View

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In the early 1990s, Anthony Aveni visited Tenerife and gave a seminar at the Instituto de Astrofísica de Canarias (IAC) during a field campaign in the Canary Islands to which he was invited by local archaeologists. I had recently finished my PhD thesis on asteroseismology and was starting a “promising” career in stellar physics. However, due to our personal interest, César Esteban and myself were taking our first steps in the tempestuous ocean of archaeoastronomy, as the discipline was best known in that epoch. The term “cultural astronomy”, recently promoted by Carlos Jaschek (“*astronomie dans le culture*” – Belmonte 2009) was not widely spread yet (see also Iwaniszewski 1994). After the seminar at the IAC, we went out for lunch with Professor Aveni and I asked him a question: “Who could better investigate archaeoastronomy; an astronomer or an archaeologist – or an anthropologist by the way – ?” His answer was very puzzling. The best, he said, would be to forget anything you had learned by training either in physical or social sciences and become a true archaeoastronomer within the framework of a completely new epistemology. We had started formal contacts with local archaeologists in the Canaries, such as Nona Perera and Antonio Tejera (e.g. Perera Betancourt *et al.* 1996), bearing in mind the “well-accepted” interdisciplinary character of the subject. Our surprise was substantive and Aveni’s response would heavily influence our future decisions. This essay is hence a reflection on my own personal experience.

For example, I had always been fond of Egyptology (notably chronology), which had been my personal passion at university in parallel to my astronomy and astrophysics studies in the early 1980s. Strongly influenced by Ed Krupp’s work in Egypt (e.g. Krupp 1984), in the mid-1990s I realised that ancient Egyptian astronomy, and especially archaeoastronomy, was a topic to explore, since few outcomes had been produced since the seminal works of Otto Neugebauer and Richard Parker in the 1960s (Neugebauer

and Parker 1960–1969). The excellent volume by Marshall Clagett had no archaeoastronomy at all and it was also obvious that several points of Egyptian sky-watching were still controversial (Clagett 1995). However, Egyptologists were apparently happy with Neugebauer and Parker's statements and the vast majority of books had no innovation at all on the topic for a quarter of a century (for example, Parker's paradigm of three parallel calendars is today thoroughly questioned, indeed abandoned). Hence, this was the moment to comply with Aveni's suggestion, formally learn Egyptian hieroglyphs to be able to directly read the texts and the iconography and become an Egyptologist. This might open the door for a new path in the research. But, even under these premises, it was not going to be an easy journey.

In life, there are encounters with people that may mark the rest of your personal or academic existence. My first meeting with Michael Hoskin at Christmas 1993 was one of these. It would be the beginning of a long-standing collaboration and, even better, of a long-lasting friendship. Hoskin is an example of a scholar who was able to become a true "archaeoastronomer", or perhaps an "archaeotopographer", as he possibly would prefer to be remembered. His work on the megalithic monuments of the Atlantic Façade and the western Mediterranean, in most of cases in close collaboration with local archaeologists or antiquarians, offered a new perspective to social science scholars where the data offered by archaeoastronomy could be used as a new tool for archaeological and historical interpretation (Hoskin 2001). Or, at least, this is what we believed.

In the last 20 years, our research team and other colleagues have been obtaining data on the orientation of monuments in a variety of ancient cultures and civilisations of the Mediterranean region. Literally thousands of sacred buildings have been measured, meaning that a statistical approach to the problem could easily, and reasonably, be performed. César González García and I faced such a task, obtaining fascinating results (see Figure 1) that, we believed, should interest social science scholars in general, and archaeologists in particular. A paper was written and sent to the journal *Antiquity*, a main publication for the field. We were happy that our paper passed the first filter and was submitted for a review process. Three referees were appointed: one was not positive but at least neutral, asking for a huge but still reasonable number of improvements, changes and clarifications. The second, clearly a person who was familiar with cultural astronomy, was more positive but still asked for changes that were perfectly reasonable. The third reviewer was disruptive: he or she attacked every single point in the paper, even contradicting several of the positive assessments of the first and second reviewers. Thus while two referees were asking us to do certain corrections, the third was asking us to do something completely different. Obviously, it was impossible to fix the demands of the three reviews at once. Hence, the paper was rejected, although fortunately it was finally published somewhere else (González-García and Belmonte 2014). This was 2013, and the conflict between archaeology (or some archaeologists) and archaeoastronomy was indeed overtly open.

From my point of view, Clive Ruggles' "astronomy and landscape" approach to dealing with the conflict has been an extremely clever one (Ruggles 1999). This seeks for the convergence of archaeoastronomy and the social sciences, locating the former as an

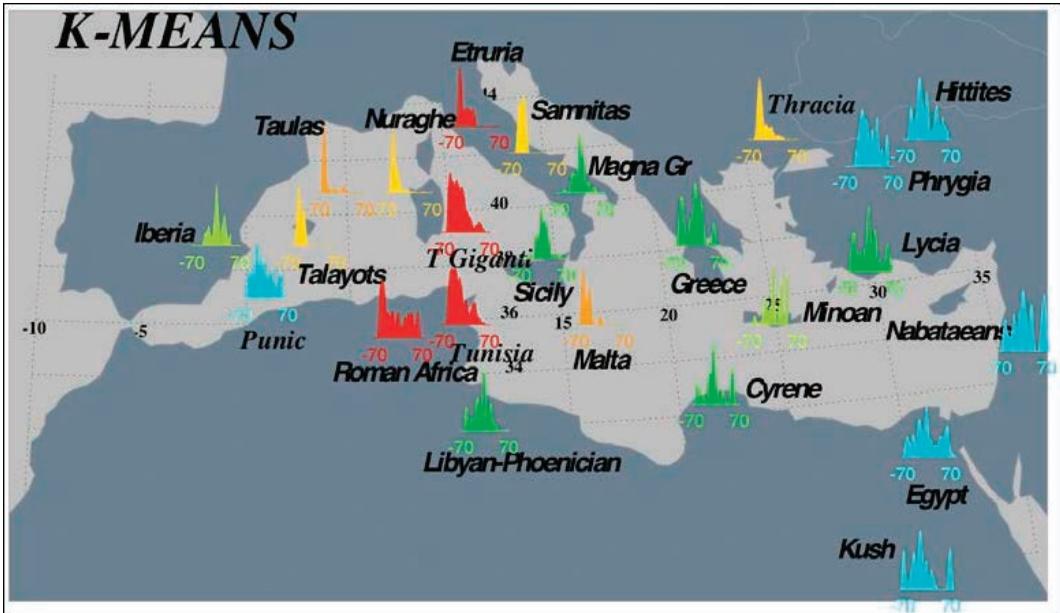


FIGURE 1. Map showing the results of a k-means algorithm, applied to the orientation data of just more than 1000 sacred monuments of different cultures across the Mediterranean region. Each group is represented by its corresponding declination histogram. Note the relationship of the Punic group with similar results in the Middle East and the process of Greek expansion and colonisation. This demonstrates the potential of cultural astronomy studies in the service of social sciences (from González-García and Belmonte 2014).

aid for, or a subject within, the discipline of landscape archaeology. This has worked well in the British Isles, notably within the megalithic phenomenon (e.g. Ruggles 1999), in the Pacific (with the unmistakable support of ethnoastronomy) and, partly, in the Andean region, where, however, a huge effort is still needed.

We have tried to extend this approach to the Middle East in general and to ancient Egypt in particular (Belmonte 2012). Here, we unfortunately had to face the challenge of the negative secular influence of the “lunatic” fringe, since the time of the wild speculations of astronomer Charles Piazzi Smyth in the nineteenth century, to the ubiquity of the Orion Correlation Theory (OCT) and like theories nowadays, the epoch of “impossible-to-evaluate” internet (dis)information. In the early 2000s, after another of these chance encounters at a “Climate Change” Conference in Santa Cruz de Tenerife, the Egyptian astronomer Mosalam Shaltout and I decided to shake the foundations of ancient Egyptian astronomy studies, creating the “Egyptian–Spanish Mission for the Archaeoastronomy of ancient Egypt” under the umbrella of the Supreme Council of Antiquities (Belmonte *et al.* 2009). We were prepared to face the challenge and change the paradigm with the help and the advice of other Egyptologists, such as Magdi Fekri, Jose Lull, Rolf Krauss and Miguel Angel Molinero, among others.

Interestingly, the Spanish community of Egyptologists has been aware of the new winds in the field and was fully open to changes; this is not so much the case with



FIGURE 2. The present and the future: Carmen Pérez Die, a well-established Egyptologist fascinated by the ancient Egyptian worldview and with decades of experience on the ground, together with Andrea Rodríguez Antón, a young astronomer doing a PhD on Roman city orientation, at the Pantheon. Both were astonished by the splendour of this “cosmos-in-a-building” wonder of Roman ingenuity, in their first visit to the site in November 2015.

Egyptology in general, although things are slowly progressing. It was precisely during the Eighth International Conference of Egyptologists, celebrated in Rhodes in 2008, when I first meet Carmen Pérez Die (see Figure 2), the latest of those happy encounters I would like to recall. One of the most reputed Spanish Egyptologists, and Director of the Spanish Archaeological Mission at Herakleopolis Magna for two decades, she was fascinated with the new paradigm before her eyes. Hence, I was lucky enough to join the Mission and had the marvellous opportunity to work nearby and discuss *in situ*, on the terrain, with a fascinating group of field archaeologists, technical designers, restorers, epigraphists and historians for the first time in my academic life as a cultural astronomer, despite my 20 years of experience as a field archaeoastronomer. The convergence seemed accomplished. I felt like any other member of the team: I was a “true” Egyptologist.

One serious consequence of the conflict of interests around archaeoastronomy – or cultural astronomy in its wider context – is the situation of the discipline, in no-man’s land. Neither archaeology nor astronomy endorses it. This challenges its future, in the sense that it is extremely difficult to follow a scientific or academic career in archaeoastronomy from the onset. Successful examples can be counted on the fingers of one hand and most well-established archaeoastronomers have been forced to follow parallel careers either as standard astronomers – as was my case – or have devoted only part of their research time to the discipline when coming from archaeology, anthropology or other related disciplines, including history of science. This is especially nefarious for the young people who are understandably cautious of following a career in cultural astronomy when future expectations are balanced and contrasted. Hence, very few (actually just a handful) PhD theses on a pure archaeoastronomical basis have been defended so far (I am now supervising one of those valiant persons who believe in future, see Figure 2). However, the possibilities to get a postdoc are reduced and that of a tenure-track or a stable position scarce, not to say nil.

I would like, however, to finish this short essay with a positive outcome, resulting from the International Year of Astronomy in 2009 (again coming from the astronomical community rather than the archaeological one): this was the Astronomy and World Heritage initiative (Ruggles and Cotte 2010) promoted in a true collaborative effort by the IAU and UNESCO. This has finally resulted in the creation of Commission C.4 “World Heritage and Astronomy” within IAU Division C, “Education, Outreach and Heritage”; and the approval by UNESCO of the “Portal to the Heritage of Astronomy”, where the initiative can be implemented and further developed. Cultural astronomy may have a great future as a powerful tool in the promotion and defence of heritage, which may help to straddle the gap between disciplines.

So, what would the answer to the question which opens this essay be? My response is: yes and no. No, because we have taken a long path to escape the controversy and there are very good expectations that cultural astronomy will be accepted as a useful multidisciplinary subject that may help with understanding people’s worldviews and how these were reflected in their material culture. This is already happening in several academic circles (for example, Mayanists, landscape archaeologists, certain Egyptologists, etc.). Perhaps landscape and skyscape may soon be understood as the two faces of a same coin. However, my answer is also yes, because life is not easy for a cultural astronomer: smart young scholars have to face silly arguments when facing exams for tenure positions where examiners are traditional archaeologists and historians; arguments such as that “cultural astronomy” is not a social science or that it does not belong to cultural anthropology or the humanities. On the other hand, it is also extremely complicated to get a job in an astronomy institution unless you do have a double life. Hence, the future of our discipline still depends on the desirable convergence between archaeoastronomy and archaeology. We still need to pursue that objective. Only the future will tell us whether we have been successful!

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