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Spirits in the sky

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For centuries, archaeology has been a multi-disciplinary endeavour. The core theme of understanding changes in the human condition over time through the study of material culture, residues from past activities, and environmental context is a beguiling one that has interested scholars involved in just about every subject from art history to zoology. Archaeoastronomy has developed as part of that broad holistic tradition and has made many valuable contributions: Stukeley's observations on the solstitial alignment of the main axis through Stonehenge in Wiltshire (Stukeley 1740: 56); Lockyer's work on the astronomy of stone monuments (1909); Thom's work on stone circles (Thom 1967); and the succession of symposia on the place of astronomy in the ancient world started in 1972 (Kendall et al. 1974), to mention just a few examples from Britain and the Old World. Against such a background the debate kindled by Kintigh and fuelled by Aveni (and see also Ruggles 1999: 1-11) may seem like a storm in a tea-cup and could, perhaps unkindly, be seen as an attempt to privilege particular contributions to understandings of ancient past. Despite the reputational damage done by a few high profile populist astro-archaeologists in the von Däniken tradition, what Glyn Daniel referred to as the "lunatic fringe" (1986: 363-66), archaeoastronomy remained strong and built upon the work that Aveni drew attention to in both the Old and New Worlds. Today, the arguments put forward by Kintigh and Aveni remain interesting, relevant, and historically illuminating, not least in revealing something of the struggle for attention faced by researchers working in multi-disciplinary fields of study. But, with the benefit of hind-sight, there are two areas of the discussion which now seem misshapen; critical issues as it turns out connected to ontology and epistemology.

Both Kintigh and Aveni recognise and accept that archaeology and astronomy are grounded in different paradigms, although each gives slightly different weight to the issue. What they failed to consider was that over time each discipline has moved through a series of paradigms at different rates and with different consequences. Such a "paradigmatic" view might have helped shape their

contributions and perhaps provided a few tools with which to explore the prevailing and historical contexts. More recently, a dialectical view of paradigm change has been proposed (Sherratt 1996) and for archaeology at least provides a better heuristic model of changing ontologies. Grossly simplified, Sherratt's cultural dialectic proposes two parallel strands of thinking, one grounded in positivist traditions developed during the European Enlightenment, the other grounded in relativist or romanticist traditions developed during the Reformation in Europe. Each strand is continuous down to the present, but, over time, the dominant tradition moves zig-zag fashion between the two strands. Thus, at any one time, work is being undertaken within the dominant and, less visibly, the non-dominant tradition. The intellectual and conceptual tensions between the two traditions – the dialectic – provide the motor for change. In the early 1990s, when Kintigh and Aveni were writing, a seismic shift was taking place in archaeology as the previously dominant processualist paradigm, sometimes known as the New Archaeology, was being eclipsed by a revival in relativist thinking that Ian Hodder dubbed "Post-Processual Archaeology" (Hodder 1984: 30). Both New Archaeology and Post-Processual Archaeology have interests in archaeoastronomy, but the nature of those interests are very different. New Archaeology used hypothetico-deductive logic for theory testing and focused on such issues as communities, trade and exchange, social organisation, and the form and layout of monuments and settlements. Post-processual Archaeology is more interested in the experience of individuals in relation to such dimensions as agency, materiality, temporality, and power. At least some of Kintigh's concerns might be attributed to the fact that areas to which archaeoastronomy had traditionally contributed were being minimised as the spotlight shifted towards new fields of inquiry. Under such circumstances Aveni's call for a "slow convergence" should perhaps instead have been a shout-out for "rapid re-orientation"; archaeology is not an unchanging monolithic discipline, and whether work is accepted, rejected, or simply ignored, depends in large measure on the ontological stance of those producing it or using it.

Likewise, both Kintigh and Aveni touch upon the issue of epistemology without perhaps realising its significance. For disciplines to work together effectively there has to be a shared epistemology: common methods of constructing arguments and of creating and validating knowledge. Archaeology, and this includes much of the simplistic alignment-hunting seen in archaeoastronomy, has been criticised for relying on rather weak, mainly inductive, "post-hoc arguments" (Smith 2015). This is something that needs to be addressed. In the meantime, many archaeological arguments are underpinned by "pattern recognition": the identification and explanation of a regular repeated arrangement or order among recognisable components in time and space. The observation of single phenomena is interesting but, unless situationally unique, they are not a pattern and even when contextualised rarely stack up to anything more than interesting observations. Comparing an observation with a probability curve suggesting that such a thing is very unlikely to happen by chance is meaningless: people win the lottery every day against improbable odds. Stuff happens. But equally important for evaluating the strength of arguments is the weight of negative evidence: patterns subsist as gaps as well as nodes.

As an example of pattern recognition, consider the case of the developed passage graves dated to the late fourth and third millennia BC along the Atlantic coastlands of northwest Europe. Spectacularly, the chamber and passage at New Grange in Ireland opens towards the rising midwinter sun and there is evidence in the structure of the monument to suggest that this orientation was both deliberate and meaningful (O'Kelly 1982). Bryn Celli Ddu on Anglesey has its chamber opening to the midsummer sunrise (Burrow 2010: 253). Maes Howe in Orkney opens

towards the setting mid-winter sun (MacKie 1997), as too at least seven of the Clava cairns in northeastern Scotland (Bradley 2000: 181). A few others could probably be added, and by selecting examples in this way a heavy emphasis on activities at the solstices might seem a reasonable starting point from which to develop an accommodating understanding. But while these sites are well-known, and attract a great deal of attention, they are exceptional. There are more than 300 recorded passage graves in Ireland alone, very few of which share the same orientation as Newgrange. Even its two neighbours, Knowth and Dowth, have chambers opening in quite different directions (Herity 1974: 1). Over 70 Clava cairns are known (Bradley 2000: 175) and the same applies here with only about 10 per cent orientated towards the midwinter sunset. Whatever interpretation is made on the basis of archaeoastronomical observations it has to work for all sites, not just a few selected examples. In this case an alternative answer to one focused on the solstices is that each tomb takes its orientation towards sunrise or sunset on a particular day that was somehow special to those communities that built and used it. Some of those days happen to coincide with days that seem significant to us (e.g. solstices) and therefore celebrate these without seeing the bigger picture. As an analogy, everyone has a birthday each year and to them and their family that day is usually special in some way; a certain percentage of the population happen to have their birthday at the solstice but it is no more or less special because of that unless they choose to make it so. The problem is therefore not how we explain the meaning of the sunrise at Newgrange, but how we explain the relationship between passage-grave orientation, the movements of the sun and its meaning to society in general, and the social traditions of those communities to whom it mattered.

So where does all this take us? Certainly, archaeoastronomy retains an important place within archaeological research. But the world has moved on since Kintigh and Aveni opened up the debate about what it can contribute. Engaging the widest possible range of interests in the archaeological project in its widest sense is not just about having good questions, constructing sharp research-agendas and building multi-disciplinary teams. Knowledge production is a pluralistic endeavour and there needs to be galvanising perspectives that structure the way research is carried out around themes of widespread and common interest. Looking back over the recent history of archaeology several can be recognised. Settlement studies is one, focused as it was on understanding the origins, distribution, structure, use, and character of the places where people lived. Trade and exchange was another that brought together expertise from many quarters including anthropology and material science. Most recently, landscape archaeology has provided a common theme around which researchers in both the positivist and relativist traditions have made, and continue to make, valuable contributions (Darvill 2001). Detailed ground surveys and the physical investigation of vast areas has been possible, as for example on Dartmoor (Fleming 1988), while studies of the way landscapes were structured and experienced using principles taken from phenomenology have also made their mark (Tilley 1994). For archaeoastronomy the concept of “skyscape”, inherent to the interests and purpose of this *journal* and a number of other recent publications, can provide a similar overarching structure. As a complement to landscape, skyscape represents a domain that was perceived and made meaningful by early communities. It can be mapped just like the landscape, and, by joining visible nodes, imaginary structures and images can be formed. And just as landscape changes with the seasons, so too does the sky. Understanding it is not simply about description and how accurately it can be measured; it is mainly about interpretation and how cogently it can be elucidated. Within the paradigms of Post-processual Archaeology, celestial bodies have agency in the sense that they structure and influence the lives and behaviour of actors in the landscape. They

may be assigned human attributes and may be called upon by mortals as spirits in the sky. The closer engagement between archaeology and archaeoastronomy that Kintigh and Aveni sought to encourage requires more than the mutual recognition of interest, more than unilateral calls for help, and more than proffered observation devoid of interpretative meaning; it needs integration through shared ontological perspectives, compatible epistemologies, and the investigation of common themes.

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