

Skyscapes: Locating Archaeoastronomy within Academia

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NB References are yet to be put in the required style.

Abstract. Archaeoastronomy remains a marginal discipline within academia, almost fifty years after the upsurge of interest in ancient astronomy in the 1960s. There is currently just one MA module in the UK, taught at the Sophia Centre at the University of Wales Trinity Saint David, where the trinity of landscapes, seascapes and skyscapes has entered the School of Archaeology, History and Anthropology's research strategy for the coming five-year period. There is also one PhD Programme at Tbilisi, while, although Clive Ruggles was appointed the world's first Professor of Archaeoastronomy at Leicester University in 2006, the Archaeology department there no longer conducts any teaching in the subject. Yet popular interest is substantial, as evidenced by the sales of 'alternative' books on ancient astronomy, and the annual gatherings at Stonehenge at the summer solstice. This chapter is mainly a literature review intended to contextualise the discussions in this book, exploring issues arising from the recent history of archaeoastronomy.

The sky is all around us. We would not be alive without it, and yet it proves a most elusive target for academic research and the understanding of culture. The notion that the sky played an essential role in the formulation of ancient societies is widely assumed. For example, according to Peter Berger,

Probably the most ancient form of legitimation is the conception of the institutional order as directly reflecting or manifesting the divine structure of the cosmos, that is, the conception of the relationship as one between microcosm and macrocosm. Everything 'here below' has its analogue 'up above'.¹

And again, a common view from amongst astronomers:

... the sky played a key role in the whole system of ancient people's ideas of nature and society. ... In ancient men's notions of celestial bodies and laws of their transit[s], links of their cosmic and terrestrial rhythms [sic], positive knowledge and mythology are inseparable. Not a single ancient culture can be understood without studying all of these notions...²

Some such views draw on historical sources. For example, the 17th century Spanish Priest Bernabé Cobo is cited by David Dearborn:

1 Berger, Peter, *The Sacred Canopy: Elements of a Sociological Theory of Religion*, New York: Anchor Books, 1969, p. 34.

2D.S. Raevsky, "Ancient astronomy as the mirror of the history of culture." *Astronomical and Astrophysical Transactions* 15, no. 1-4 (1998): 299-305.

The movements of the heavenly bodies are an admirable thing, well known and manifest to all peoples. There are no people, no matter how barbaric and primitive, that do not raise up their eyes, take note, and observe with some care and admiration the continuous and uniform course of the heavenly bodies.³

My proposition here, though, is not only that landscapes do not exist without skylscapes. Barbara Bender argued that ‘people’s experience of the land is based on their everyday attentiveness to the tasks in hand, the routines, their relations to each other, to their animals and crops, and to the world around them’.⁴ And, by world, we can read ‘sky’ in the fullest sense, with its attendant clouds, wind, rain, thunder, lightning, Sun, Moon and stars. From a phenomenological point of view this is difficult to challenge. After all, landscapes cannot be seen without the sky; without the light of the Sun which creates day and, at periodic intervals, the light of the full Moon which mitigates the darkness of night. Simply, landscapes do not exist without skylscapes. Neither does life: the sky is the source of warmth, the air which we breathe and, from rain, much of the water we drink. We might, then, argue on *a priori* grounds that any study of ancient culture which does not include the sky is therefore capable of only ever providing a partial picture of ancient cultures. Just as land, though, does not exist without sky, so sky does not exist without the definition provided by land: simply, when the Sun is below the horizon, where land ends, the world is cold and dark and, when it is above, the world is warm, or, at least, warmer, and light.

Following this theme, Chris Tilley wrote of cultures in which the experience of land is based on ‘the physical and biological experience of landscape – earth, water, wood, stone, high places and low places, the wind, rain, sun, stars and sky’.⁵ For example, landscapes such as those of aboriginal Australia may be as much a physical representation of cosmology and mythology as they are of the tasks and routines of mundane existence.⁶ Further, cultures which assume that ancestors and ancestral beings are associated with the land develop a profoundly personal relationship with it, and are required to care for it: thus land, sky and people exist in a system of integrated, inter-dependent and interlocking mutual relationships. Tilley refers to Bender’s sense of landscape as a palimpsest upon which many different uses and experiences have been laid throughout history.⁷ He writes of places as acquiring history over time, which then results in what he calls ‘sedimented layers of meaning’; such layers of meaning are then recorded and revealed in the narratives people construct about their knowledge and experience of place.⁸ Landscape then becomes not a matter of static geological form but is contested, social, active and created. Similarly, if the environment becomes, in John Evans’ words, a means of ‘how people

3 Cited in Hirst, Kris, ‘An Interview with David Dearborn’, <http://archaeology.about.com/cs/archaeoastronomy/a/dearborn.htm> (accessed 8 January 2013).

4 Barbara Bender, ‘Contested Landscapes: Medieval to Present Day,’ in *Stonehenge: Making Space*, (Oxford: Berg, 1998), p. 98.

5 Christopher Tilley, *A Phenomenology of Landscape* (Oxford: Berg, 1994), p. 26.

6 Tilley, *Landscape*, p. 47.

7 Bender, *Stonehenge*, p. 6.

8 Tilley, *Landscape*, p. 27, see also p. 32.

think, relate to each other, and understand their lives', then this is true of the celestial part of the environment as much as the terrestrial.⁹ And, if terrestrial 'Places, pathways and human subjectivities mediate each other to create an understanding of...social being' as Tilley put it, then so, we can conclude, do celestial.¹⁰ Such notions of landscape may then be applied to the sky itself, which can be seen as a palimpsest containing sedimented layers of meaning, a cultural record of the past, an archaeological source if we care to use it.

This theme has been taken up by the current wave of academic archaeoastronomers as the rationale for their discipline. For example, according to Clive Ruggles, 'It is evident, from any reasonable theoretical standpoint, that human perceptions and actions relating to the sky are intertwined with perceptions and actions relating to almost anything else'¹¹ Arguing that the sky should therefore be taken into account in any attempt to study culture, Ruggles added:

The sky is of universal importance. Cultural perceptions of the sky are vital in fulfilling humankind's most basic need to comprehend the universe it inhabits, both from a modern scientific perspective and from countless other cultural standpoints, extending right back into early prehistory. They form a fundamental sect of people's conceptions of their own cultural identity. Developing an understanding of these perceptions is a crucial component of Western anthropologists', archaeologists' and historians' efforts to comprehend human conceptions and actions both in the past and in the present.¹²

The discipline which combines archaeology with astronomy is conventionally known as archaeoastronomy, the alternative, astroarchaeology, having a minority appeal.¹³ But, like all such terms, archaeoastronomy has no single, settled definition. A simple view occurs on the Sophia Centre website:

Archaeoastronomy is the study of the incorporation of celestial orientation, alignments or symbolism in human monuments and architecture.¹⁴

9 Evans, John G., *Environmental Archaeology and the Social Order*, London: Routledge, 2003, p. 14.

10 Tilley, Christopher, *Metaphor and Material Culture*, Oxford: Blackwell, 1999, p. 180.

11 Ruggles, Clive, 'Pushing back the frontiers or still running around the same circles? 'Interpretative archaeoastronomy' thirty years on', in Clive Ruggles (ed.), *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (Cambridge: Cambridge University Press, 2011), p. 6

12 Ruggles, Clive, 'Pushing back the frontiers or still running around the same circles? 'Interpretative archaeoastronomy' thirty years on', in Clive Ruggles (ed.), *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (Cambridge: Cambridge University Press, 2011), p. 15.

¹³ To come

14 'Archaeoastronomy', Sophia Centre, <http://www.lamp.ac.uk/sophia/ma.html#archaeoastronomy> [accessed 28 December 2009].

However, the Sophia Centre module is taught within the wider context of a MA which deals with a range of historical and anthropological issues. A wider definition is therefore also appropriate, as in Clive Ruggles' from 2009:

Archaeoastronomy is the study of *beliefs* and *practices* relating to the sky in the past, especially in prehistory, and the *uses* to which people's knowledge of the skies was put (my emphasis).¹⁵

In this sense the identification of any astronomical components in ancient sites becomes only a means to building a fuller picture of ancient cultures. As the Centre for Archaeoastronomy made clear:

The study of the astronomical practices, celestial lore, mythologies, religions and world-views of all ancient cultures we call archaeoastronomy. We like to describe archaeoastronomy, in essence, as the '*anthropology of astronomy*', to distinguish it from the 'history of astronomy' (my emphasis).¹⁶

Ruggles continued:

The term 'archaeoastronomy' has rightly come to define the field concerned not only with the disposition of monumental constructions and landscapes but also with artefacts, iconography, inscriptions, historical documentation, written accounts – in short every conceivable form of data that might provide insights into thoughts and practices relating to astronomy in the past.¹⁷

The discipline then becomes less archaeological in a narrow sense and more cross-disciplinary, requiring familiarity with anthropological methodologies, the study of religions and the analysis of texts. The Centre for Archaeoastronomy statement distinguished the anthropology of astronomy from the history of astronomy but, as Ruggles pointed out, historical skills are necessary for the analysis of documentary sources and, in any case, the semantic boundary between history and anthropology was demolished in the debate between Hildred Geertz and Keith Thomas over the nature of magic, religion and astrology.¹⁸

15 Clive Ruggles, <http://www.cliveruggles.net/> [accessed 8 December 2009].

16 The Centre for Archaeoastronomy, http://terpconnect.umd.edu/~tlaloc/archastro/cfaar_as.html, (accessed 8 December 2009).

17 Ruggles, Clive, 'Pushing back the frontiers or still running around the same circles? 'Interpretative archaeoastronomy' thirty years on', in Clive Ruggles (ed.), *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (Cambridge: Cambridge University Press, 2011), p. 1.

18 Geertz, Hildred, 'An Anthropology of Religion and Magic, I', *Journal of Interdisciplinary History*, Vol. 6 no 1 (Summer 1975) pp. 71-89; Thomas, Keith, 'An Anthropology of Religion and Magic, II', *Journal of Interdisciplinary History*, Vol. 6 no 1 (Summer 1975) pp. 91-109.

The emphasis in archaeoastronomical research and publication since the 1960s has been on the European Neolithic and, amongst scholars in the Americas, the cultures of Mesoamerica, extending north into the modern USA, is on the prehistoric world. Some attention has been paid to alignments in Christian churches, Hindu temples, Polynesian sites and so on, but such studies only emphasise the pre-modern and non-western. Yet, there is no theoretical reason why archaeoastronomy needs to distance itself from the modern and the western, when neither archaeology nor astronomy attempts this feat. It is quite possible to study the space race under the general rubric of archaeoastronomy: space travel quite clearly concerns astronomy, while it has so far generated a fair amount of debris which could easily be classed as primary source material for archaeologists. Nevertheless, our main concern here lies with the ancient world, especially the Neolithic.

Studying the sky presents both opportunities and disadvantages. The major advantage is that the positions of the Sun, Moon and stars as seen from any terrestrial location can be reconstructed with great precision for any time on any day within the period we are studying: accuracy may diminish with distance in time, but not to any degree that matters. As Michael Hoskin wrote:

It must be remembered that history of astronomy is a journey back in time to cultures alien to our modern thinking...the sky we can observe now is the same sky that prehistoric, ancient and medieval cultures sought to understand – (and) is the same sky that modern astronomers explore.¹⁹

With good archaeological dating, in ideal conditions it is therefore possible to establish without any doubt whatsoever the key features of solar, lunar or stellar phases to which a key monument may be related. Of course, the phrase, ‘without any doubt’, is relative. And here we run into the first of our evidential problems: although the positions of astronomical bodies can be calculated with great accuracy, the ancient sky as a whole cannot be reconstructed in detail for any particular moment. We have no idea whether any one day was cool or hot, cloudy or clear, or windy or calm. We may know what time and where the Sun appeared to rise, but not whether it was gold, red, white or obscured by clouds. In addition, changes in archaeological dating together with uncertainty over the structure and function of sites, create problems of interpretation: at Stonehenge, for example, the consensus in recent years has altered from an emphasis on alignment with the Sun rise at summer solstice to the opposite point, the winter solstice Sun set, notwithstanding the entry of the summer solstice paradigm into popular culture. And, at any given stone circle, would the hypothetical Neolithic observer have been in the middle looking out, which is the standard model, or on the outside looking in? And, in any case, is ‘observation’ a modern concept anachronistically projected onto Neolithic culture? In this case

¹⁹Michael Hoskin. *The Cambridge Concise History of Astronomy*. Cambridge University Press (2001). ISBN: 0-521-57600-8 Pag. 17

we must learn from modern anthropology and ‘bracket off’ our own biases: as Ruggles argued, ‘We must move on from being a group of Western anthropologists ‘looking out’.²⁰ Such issues go to the heart of debates on some particular key sites. As Kim Malville has argued in relation to the Peruvian monuments at Chankillo, the notion of ancient astronomers using prehistoric observatories should probably be replaced by concepts of ritual, shamanistic participation in a living cosmos composed of undistinguished sky and land.²¹ Norman Lockyer’s statement from the early 20th century, that ‘the view that our ancient monuments were built to observe and to mark the rising and setting places of the heavenly bodies is now fully established’, is therefore still plausible as a general statement, but difficult to demonstrate in many individual cases.²² As John Steele cautioned,

Astronomical dating can be a powerful tool for establishing absolute chronologies, but it is also a tool that must be used conservatively, for it can easily produce precise and impressive looking results based on invalid assumptions – results so precise and impressive they may not be questioned by scholars in other fields.²³

Equally difficult are changing fashions in interpretation. Ronald Hutton has drawn attention to political pressures, of which a key example is the influence of feminism in the development of notions of a Utopian stone-age matriarchy, and of changing models of ancient invasion and migration.²⁴ And at this point we should invoke Jaquetta Hawkes famous sceptical statement that ‘Every age has the Stonehenge it deserves - or desires’.²⁵ Astronomical evidence, then only exists

20 Ruggles, Clive, ‘Pushing back the frontiers or still running around the same circles? ‘Interpretative archaeoastronomy’ thirty years on’, in Clive Ruggles (ed.), *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (Cambridge: Cambridge University Press, 2011), p. 5.

21 Malville, Kim, ‘Astronomy and ceremony at Chankillo: an Andean perspective’, in Clive Ruggles (ed.) *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (the 9th “Oxford” International Symposium on Archaeoastronomy), Lima, Peru, 4-14 January 2011 (Cambridge: Cambridge University Press, 2011), pp. 154-161. See also Ghezzi, Ivan, and Clive Ruggles, ‘The Social and Ritual Context of Horizon Astronomical Observations at Chankillo’, in Clive Ruggles (ed.) *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (the 9th “Oxford” International Symposium on Archaeoastronomy), Lima, Peru, 4-14 January 2011 (Cambridge: Cambridge University Press, 2011), pp. 144-153.

22 Lockyer *Stonehenge and Other British Stone Monuments Astronomically Considered* 1909 - i.e. 1906 2nd edn., p v - Ruggles 1999: 6).

23 John Steele, ‘The Use and Abuse of Astronomy in Establishing Ancient Chronologies’, *Physics in Canada*, PAGE

24 Hutton, Ronald, ‘Prehistoric British Astronomy: whatever happened to the Earth and Sun?’, in Nicholas Campion (ed.), *Heavenly Discourses* (Lampeter: Sophia Centre Press, 2013).

25 Jaquetta Hawkes 1967: 174, see Bender 1998: 114).

in relation to wider cultural studies, a realisation which has resulted in the use of terms such as 'astronomy in culture', or 'cultural astronomy', the latter defined as

the use of astronomical knowledge, beliefs or theories to inspire, inform or influence social forms and ideologies, or any aspect of human behaviour. Cultural astronomy also includes the modern disciplines of ethnoastronomy and archaeoastronomy.²⁶

To an extent, the academic archaeoastronomers' move towards a multi-disciplinary approach since the 1970s is a response to the justified criticisms by archaeologists of archaeoastronomical work up to the 1970s, and of its tendency to operate solely from astronomical evidence and ignore the archaeological. The struggle between archaeologists and astronomers has been summarised by Clive Ruggles, who framed it within C.P. Snow's famous 'two-cultures' divide, first outlined in 1956 and forever after a metaphor for the intellectual gulf between the arts and sciences. (Ruggles, Clive, 1999:6). In retrospect, Atkinson's verdict on Gerald Hawkins' *Stonehenge Decoded*, which can probably claim to have kick-started modern archaeoastronomy, as 'tendentious, arrogant and unconvincing' is a fair one.²⁷ On the other hand, Glyn Daniel's view of the New Grange solar alignment as 'an example of the jumble of nonsense and wishful thinking indulged in by those who prefer the pleasures of the irrational and the joys of unreason to the hard thinking that archaeology demands', is somewhat extreme, and wouldn't now stand scrutiny.²⁸ Yet, Daniel's view of archaeoastronomy is perfectly understandable if one doesn't distinguish between attempts to define archaeoastronomy as an academic discipline, as pioneered by such figures as Hoskin, Ruggles and Malville, on the one hand, and Atlantean fantasies about advanced ancient civilisations and extra terrestrial visitations, on the other hand. Daniel, who denied the distinction between academics and alternatives, wrote of archaeoastronomy:

To me this is a kind of refined academic version of astronaut archaeology. The archaeoastronomy buffs, although they very properly eschew wise men from outer space, very improperly insist on the presence in ancient Europe of wise men with an apparently religious passion for astronomy.²⁹

To comprehend Daniel's view we have to understand the cultural context within which archaeoastronomy developed. Culturally, since the 1970s, the discipline of archaeoastronomy has divided between those who seek an academic context, aspiring to rigour and peer-review, and those usually characterised as 'alternative' whose chief agenda is to demonstrate the existence of advanced ancient civilisations. The term 'alternative' can be misleading, for the alternative may be the mainstream, but it is the term we have, so use it we must. The alternative view also has

26 Champion, Nicholas, 'Editorial', in *Culture and Cosmos*, Spring/Summer 1997, Vol. 1, no 1, p. 2. See also Baity, Elizabeth Chesley, 'Archaeoastronomy and Ethnoastronomy So Far', *Current Anthropology*, Vol. 14 no 4 Oct 1973, pp. 389-449.

27 Atkinson, Richard, *Nature* 210 (1966), p. 1302.

28 Daniel, Glyn, *Newgrange and the Bend of the Boyne*, 1964, cited in Martin Brennan, *the Stars and the Stones*,

29 Daniel, Glyn, *Scientific American*, 1980, p. 243,

important literary precedents, notably in the first major post-war work on the subject, Gerald Hawkins' 1965 *Stonehenge Decoded*, which claimed that Stonehenge was a giant computer which might be used to predict eclipses.³⁰ In 1966 the astronomer Fred Hoyle was asked by the journal *Antiquity* to check (and hopefully refute) Hawkins' eclipse predictor model. Although Hoyle found flaws in Hawkins' model, he instead produced a simpler, more effective, one. Hoyle then compared the builders of Stonehenge to NASA scientists, challenging the conventional archaeological idea of Neolithic people as savages.³¹ While Hawkins' work attracted wide attention, Alexander Thom's *The Stone Circles of Britain*, published in 1967, caused less of a public stir. It was, though, more difficult to refute on account of the sheer extent of the precise surveys he used to substantiate his claim that megalithic sites were both laid out according to exact geometrical principles and precise solar, lunar and stellar alignments.

The cultural backdrop to Hawkins' and Thom's books was provided by two distinct cultural currents.³² First, and most obvious, was the 'space race', which began with the launch of Sputnik in 1957 and then moved via Yuri Gagarin's first manned space flight in 1961 to the Apollo moon landing in 1969. It was therefore natural, if anachronistic, for Hoyle to directly compare the megalith builders to NASA scientists and for astronomers, about to achieve their greatest triumph, to acquire a new set of distinguished ancient ancestors. The second was the social and political revolution of the 1960s: the widespread use of psychedelic drugs from 1965 onwards, the 1967 'Summer of Love' and the political radicalism of 1968, the 'May Days' in Paris and the anti-Vietnam war protests. The notion that megalithic culture was highly sophisticated encouraged its adoption as a pre-Christian, pre-scientific, pre-industrial alternative to the supposedly 'alienated' civilisation of the modern west which the disaffected radicals were busily rejecting.³³ From this perspective Stonehenge has become the Westminster Abbey, perhaps the St. Peter's, of New Age, neo-pagan, Wiccan, and alternative and ecological spiritualities, a monument which supposedly recognises humanity's need for harmony with the seasons, sun, moon and stars rather than its dependence on a distant Judaeo-Christian God. The marriage between Thom, Hawkins and the emerging alternative spiritualities was effected by John Michel who, in the late 1960s, summarised their new theories in the pages of *International Times*, the London-based 'underground newspaper'. Michel's *The View over Atlantis*,³⁴ first published in 1969, is as much the seminal text of modern 'earth mysteries' and sacred geography, as Hawkins' and Thom's work is of archaeoastronomy.

30. Hawkins, Gerald, *Stonehenge Decoded*, New York: Dorset Press 1965.

31. See Hoyle, Fred, 'Speculations on Stonehenge', *Antiquity*, 1966, Vol. 40, pp. 262-76. See also Hoyle, Fred, *From Stonehenge to Modern Cosmology*, San Francisco, W.H. Freeman, 1972.

³² Ruggles

33. Campion, Nicholas, 'From Stonehenge to Seattle: Eco-Protest, Archaeoastronomy and New Age Cosmology', in Salvatore Serio (ed.), *Proceedings of the INSAP III Conference, Memoire della Societa Astronomica Italiana*, 2002, Special number 1, pp. 202-5.

34. Michel John, *The View over Atlantis*, London: The Garnstone Press, revised edition 1972, [1969].

Between them, then, Thom and Hawkins were responsible for the idea that Neolithic Britons were much like modern scientists, with an exact astronomy and precise surveying techniques, rather than stone-age savages. This had three effects:

1. It fed straight into the New Age movement, providing an apparent ancient lineage and authenticity for modern ideas of the interdependence of heaven and earth.
2. It contributed to the challenge to diffusionism, challenging views of the Neolithic period as essentially barbarous, as well as the theory that civilisation spread outwards from the Middle East, the 'cradle' of civilisation.
3. It encouraged the study of possible astronomical alignments in other cultures, particularly native North American and Central American.

Intrigued by astronomical investigations of megalithic sites, working separately to Thom and Hawkins, and attracting far less attention, Alexander Marshak had published his first work arguing for the existence of lunar calendars dating back to 30,000 BCE in 1964.³⁵ He identified these stone-age calendars in notches on antlers, tusks and bones. Marshak's work attracted little criticism and provides the only pervasive material evidence of a culture of astronomy in the late palaeolithic period.³⁶ It was four years later, in 1968, that the term 'archaeoastronomy' was reputedly coined by Euan MacKie.

It was in such a context that R.J. Atkinson, who had first criticised Thom, then recanted his earlier opposition. He concluded that the megalith builders had indeed made an original contribution to European culture and that 'it is within the framework of this nascent model of prehistory that Thom's astonishing contribution will find its rightful place' (Atkinson 1975: 51). Atkinson gave a solid endorsement to Thom, berating his colleagues for their failure to accept the significance of his conclusions:

I turn finally to the impact of Thom's hypothesis on the thinking of prehistorians. Here I incline. I am afraid, to a moderate pessimism, if only because so many of us have been trained, like myself, only the humanities, and thus lack the numeracy required. But this is not the only barrier. It is important that non-archaeologists understand how disturbing to archaeologists are the implications of Thom's work, because they do not fit the conceptual model of the prehistory of Europe which has been current during the whole of the present century, and even now is only beginning to crumble at the edges. Part of the foundations of this model can be summed up in the phrase *ex oriente lux* - the idea that cultural, scientific and technological innovations were made in the early civilisations of

35. Marshak, Alexander 'Lunar Notation on Upper Palaeolithic Remains, *Science*, 1964, Vol. 146, p. 743; see also Marshak, Alexander, *The Roots of Civilisation*, Mt. Kisco, New York and London: Moyer Bell Ltd., 1991.

³⁶ For criticism of Marshak see d'Errico, F. (1989) Palaeolithic Lunar Calendars: A Case of Wishful Thinking? *Current Anthropology*, Vol. 30, No. 1 (Feb., 1989), pp. 117–118.

the ancient east, and reached Europe only in a dilute and etiolated form through a slow and gradual process of diffusion. In terms of this model, therefore, it is almost inconceivable that mere barbarians on the remote north-western fringes of the continent should despot a knowledge of mathematics and its applications hardly inferior, if at all, to that of Egypt at about the same date, or that of Mesopotamia considerably later.

It is hardly surprising, therefore, that many prehistorians either ignore the implications of Thom's work, because they do not understand them, or resist them because it is more comfortable to do so' (REF. Atkinson 1975: 51).

Atkinson, though, had been seduced by the power of astronomy to intimidate those who are ignorant of its methods, a phenomenon already noted by John Steele. Nevertheless, prompted by the archaeological controversy over Hawkins' and Thom's theories, the Royal Society and the British Academy held a joint symposium in 1972 entitled 'The Place of Astronomy in the Ancient World'.³⁷ From these and other discussions it soon became clear to the first academic archaeoastronomers that astronomical evidence alone was not sufficient to make a case. Intentionality became a key issue. For example, if an astronomical alignment is identified at a particular monument, how can it be argued that the alignment was intended rather than coincidental? Statistics might provide one answer: if a certain number of similar sites indicate similar alignments then it may be reasonably concluded that they were intended by the builders. Yet, a site such as Stonehenge is unique and its purpose might have been different to that of other, smaller circles and may therefore not be susceptible to statistical evidence. Perhaps, then, it was argued, ethnographic and anthropological evidence might provide additional confirmatory evidence for the existence of ancient astronomy. It was in this context, in 1973, that Elizabeth Chesley Baity compiled her extensive survey of all the material published to date on astronomy in ancient cultures (excepting civilisations such as Egypt and Mesopotamia for which the literature was widely known), and the term 'ethnoastronomy' entered common usage.³⁸ It was then recognised that multi-disciplinary approaches were required. As John Carlson wrote in 1978,

Archaeoastronomy is a centrifugal science, yet the focus is on a central problem in the development of civilisation and technological man. It yields results at the interfaces between many traditional disciplines and makes contributions in unexpected and personally rewarding ways. These new results enrich not only the individual disciplines but also contribute to the general understanding of the origins of science and the roots of human culture.³⁹

37. 'The Place of Astronomy in the Ancient World', *Philosophical Transactions of the Royal Society*, London, A. Vol. 276, pp. 1-276.

38. Baity, Elizabeth Chesley, 'Archaeoastronomy and Ethnoastronomy So Far', *Current Anthropology*, Vol.14, no 4, October 1973, pp 389-431.

39. John Carlson in *Archaeoastronomy Bulletin*, November 1978, Vol. II, no 1, p. 1.

By 1977 there was sufficient interest for John Carlson to found the periodical *Archaeoastronomy Bulletin* (later renamed simply *Archaeoastronomy*) as the house journal of the Center of Archaeoastronomy⁴⁰ and, in the following year, the *Journal for the History of Astronomy* launched an annual supplement, also called *Archaeoastronomy*.⁴¹ In September 1983, the Center of Archaeoastronomy organised, jointly with the National Air and Space Museum, the first international conference on ethnoastronomy at the Smithsonian Institute in Washington DC.⁴² A strong emphasis on studies based on the Americas indicated both an expanding area of interest in academia, unencumbered by the baggage that was brought to studies of Megalithic culture by western archaeologists. The overwhelming focus on the non-western and pre-modern defined the area in anthropological rather than sociological terms, that is, about ‘them’ rather than ‘us’.

Separately, the first Conference on Archaeoastronomy was organised in Oxford in 1981. This conference was to be the ancestor of an ongoing series of ‘Oxford’ conferences, named after the founding venue. The second conference was held in Mexico in 1986, and the third in St. Andrews in 1990.⁴³ At the time of writing the tenth in the series is scheduled to be held in Cape Town in July 2014. The term ‘Cultural Astronomy’ first appeared in the volume of papers

40. The Center for Archaeoastronomy, PO Box ‘X’, College Park, MD 20741-3022, USA. tel: (301) 864-6637, FAX (301) 699-5337. The Centre’s newsletter also carries news of the International Society for Archaeoastronomy and Astronomy in Culture. <<http://www.wam.umd.edu/~tlaloc/archastro/>>. The journal *Archaeoastronomy* is available from University of Texas Press, Journals Division, Box 7819, TX 7813-7819, USA.

41. *Journal for the History of Astronomy*, Science History Publications Ltd., 16 Rutherford Road, Cambridge, CB2 2HH, England.

42. The First International Conference on Ethnoastronomy: Indigenous Astronomical and Cosmological Traditions of the World, September 5-9 1983, Smithsonian Institution, Washington, program and abstracts available from The Center for Archaeoastronomy, PO Box ‘X’, College Park, MD 20741-3022, USA.

43. Papers derived from the second conference were published as Aveni, Anthony F., *World Archaeoastronomy*, Cambridge: Cambridge University Press 1989. Papers derived from the third conference were published in Ruggles, Clive and Nicholas Saunders, *Astronomies and Cultures*, Niwot, Colorado: University Press of Colorado 1993 and Ruggles, Clive (ed.), *Archaeoastronomy in the 1990s*, Loughborough: Group D Publications, 1993. Papers from the sixth conference, held on Tenerife in 1999 were published as Esteban, César and Juan Antonio Belmonte (eds.), *Astronomy and Cultural Diversity, proceedings of the 1999 Oxford VI Conference on Archaeoastronomy and Astronomy in Culture*, Tenerife: Oranismo Autonomo de Museos del Cabildo de Tenerife 2000. The most recent volume is Clive Ruggles (ed.), *Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures*, Proceedings of International Astronomy Union Symposium 278, (the 9th “Oxford” International Symposium on Archaeoastronomy), Lima, Peru, 4-14 January 2011 (Cambridge: Cambridge University Press, 2011).

derived from the third conference,⁴⁴ and became part of the sub-title for the journal *Culture and Cosmos* in 1997.⁴⁵ Two academic groups have been formed to bring students of these areas together – SEAC⁴⁶ (the European Society for the Study of Astronomy in Culture) and ISAAC⁴⁷ (the International Society for the Study of Archaeoastronomy and Astronomy in Culture). In 2000 *Archaeoastronomy* became ISAAC's official journal, with the new subtitle, *the Journal of Astronomy in Culture*. In the same year the discipline gained academic recognition with the appointment of Clive Ruggles as the world's first Professor of Archaeoastronomy at Leicester University.

During its progress through the 1970s to 1990s the new academic discipline of archaeoastronomy tended to withdraw from the extreme position taken by Hawkins and Thom in relation to Megalithic culture. The notion of a sophisticated Megalithic civilisation has, however, been appropriated by the advocates of the highly popular publishing genre which has come to be known as 'alternative archaeology', pioneered in the 1990s by such figures as Robert Bauval and Graham Hancock.⁴⁸ Alternative archaeology pits itself against its academic cousin by insisting that the latter routinely suppresses evidence for a universal ancient civilisation. Thus the back jacket of Adrian Gilbert and Maurice Cotterell's 1995 publication, *The Mayan Prophecies*, claimed that the book reveals the 'controversial answers the establishment "experts" refuse to accept'. The counter-argument is that alternative archaeologists play fast and loose with the evidence, sacrificing rigour in pursuit of mythology. Essentially alternative archaeoastronomy has roots in late eighteenth and nineteenth-century concepts of an ancient universal civilisation, particularly those propagated by H.P. Blavatsky and the Theosophical Society.⁴⁹

44. Ruggles, Clive and Nicholas Saunders, 'The Study of Cultural Astronomy', in Ruggles, Clive and Nicholas Saunders, *Astronomies and Cultures*, Niwot CO: University of Colorado Press 1993, pp. 1-31.

45. <http://www.cultureandcosmos.com>

46. <http://www.mikrob.com/seac>. For papers from recent conferences see Ruggles, Clive, with Frank Prendergast and Tom Ray, *Astronomy, Cosmology and Landscape*, Proceedings of the SEAC 98 Meeting, Dublin, Ireland, September 1998, Bognor Regis: Ocarina Books 2001; Blomberg, Mary, Peter E. Blomberg and GöranHenriksson, *Calendars, Symbols, and Orientations: Legacies of Astronomy in Culture*, Proceedings of the 9th annual meeting of the European Society for Astronomy in Culture (SEAC), The Old Observatory, Stockholm, 27-30 August 2001, Stockholm: Uppsala Astronomical Observatory Report no 59 2003. The most recent volumes are José Alberto Rubiño-Martín, Juan Antonio Belmonte, Francisco Prada and Anxton Alberdi, (eds.), *Cosmologies Across Cultures*, Prvo, Utah: Astronomical Society of the Pacific, 2009, and Ivan Šprac and Peter Pehani (eds), *Ancient Cosmologies and Modern Prophets* (Ljubljana, Anthropological Notebooks year XIX, supplement, 2013).

47. <http://www.wam.umd.edu/~tlaloc/archastro/> (accessed ????????)

48. See for example, Bauval, Robert and Adrian Gilbert, *The Orion Mystery: Unlocking the Secrets of the Pyramids*, London: Heinemann, 1994; Robert Bauval, John Grigsby, and Graham Hancock, *The Mars Mystery*, London: Michael Joseph 1998.

49. Blavatsky, H.P., *The Secret Doctrine*, volumes 1 and 2, facsimile of the original edition of 1888, Los Angeles: The Theosophy Company 1982.

We can see how Daniel's horror at the concept of archaeoastronomy arose out of the discipline's unformed and chaotic nature at the time: he appeared not to distinguish between the nascent academic discipline and the popular, New Age, version, perhaps because the academics were still too close to the Hawkins-Hoyle-Thom vision of an advanced ancient civilisation. Yet, the academics and the alternative have continued to diverge. To adopt a Hegelian model, since the early 1970s the discipline has experienced its own dialectical process in which the Hawkins-Hoyle-Thom thesis, which remains paramount to this day within 'alternative' archaeoastronomy, encountered external pressures in the form of academic standards and archaeological criticism. The resulting antithesis, rejecting alternative models, has resulted in a new cross-disciplinary synthesis, in which astronomical evidence exists only within a matrix of methodologies drawn from the humanities and social sciences. Therefore when Timothy Darvill wrote that 'No evidence exists for the use of stone circles as mathematical computers or for any other scientific purposes. Rather, the evidence can be economically explained as relating to the construction of simple calendar to aid the timing of rituals and the regularisation of the seasons', he opens the way towards a recognition that the use of the sky only exists in relation to culture.⁵⁰ There is no need to imagine, as Hoyle did, that the megalith builders were just like us. We can allow them to be who they were. Similarly, Julian Thomas has emphasised the need for an integrated approach. Commenting on apparent solar alignments at the Dorset Cursus, he argued that perceptions of the sky were integrated with those of the land, neither was privileged over the other, but neither were they separate.

These alignments on the sun and moon are not to be ignored, but monuments are just as often oriented upon other monuments, or upon prominent features of the landscape... What these orientations indicate is that astronomical phenomena were not privileged over an ancestral monuments or landscape features. In the case of the Dorset Cursus, the experience of watching the sunset over Gussage Hill depended upon the momentary coincidence of chalk from the earth, the descending sun, the dead in their barrow and the surrounding forest. This does not indicate any scientific observation of the heavens so much as a perceived unity of earth and sky, life and death, past and present, all being referenced to bring more and more emphasis on to particular spaces and places. This would tend to heighten the significance of whatever transactions and performances took place there. At the same time, it would also limit access to these spaces in terms of both direction and of timing, and would contribute to the way in which the space was experienced by promoting the impression that it stood at an axial point of an integrated cosmos.⁵¹

Writing on Stonehenge, Julian Edmonds wrote,

50 Timothy Darvill, *Prehistoric Britain*, London and New York, Routledge, 1987, p. 97.

51 Thomas, Julian, *Understanding the Neolithic*, London, Routledge, 1994, p. 53; See also Edmonds, M., *Ancestral geographies of the Neolithic: landscape, monuments and memory*, London: Routledge, 2002, p. 146.

The perimeter was reworked and many timbers were added, circles, facades and avenues suggesting processions and a growing emphasis on hidden rites. When the stones were erected to mimic timbers, authority may have been conferred on those who saw the sunrise along the avenue and over the heel stone at Midsummer...The proximity of the dead suggested a genealogical depth to the ties that bound certain people to the pace and all that it represented. Those who could sustain that link could work the ties between earth and sky in their interests.⁵²

As an academic discipline, archaeoastronomy may be best seen as narrowly concerned particularly with the measurement of astronomical phenomena in relation to the built environment. The wider field of cultural astronomy then necessarily brings in all those disciplines which study culture, chiefly history and anthropology. Even then, though, the term astronomy is still somewhat restrictive, carrying connotations of the modern scientific discipline, which are decidedly anachronistic when applied, say to the Neolithic. Inherent in its use is the notion of scientific detachment. Yet astronomy in the modern sense deals with only a part of the visible sky, the points of light we call sun, moon, stars and planets. The concept of skylscapes, though, allows us to apply the same language to ancient views of the sky as we do to landscapes, turning it from an object of impartial, observation which anticipates modern science, into the integrated part of a total environment, along with land, sea and all that live in them that is more familiar in the pre-modern and non-western worlds. As Hutton has cautioned, we should beware of romanticising Neolithic people as Rousseau-esque noble savages, but neither should we turn them into ancient astronauts. The concept of the skyscape, then, should be value-free, but it can assist in our search for evidence, constructing a fuller picture of ancient societies.

⁵² Edmonds, M., *Ancestral geographies of the Neolithic: landscape, monuments and memory*, London: Routledge, 2002, p. 147-8