

## **Related Topics for Discussion:-**

### **Sun/Moon knowledge in the Late Neolithic**

There is evidence from a wide variety of Neolithic structures: long barrows, cists, passage graves, stone circles, stone rows etc., that many were orientated on the sun, moon and possibly the stars (North 1996; Ruggles 1999: 125-143; Burl 1982; Thom 1967: 96-104). In particular there is found to be a significant interest in solstices and lunar standstills. This interest is not limited to northwest Europe, but is also found in the Pacific (Edwards and Belmonte 2004; Edwards and Edwards 2010) and in North America the Hopi Indians' calendar (Renfrew 1973: 263-65) and the Hopewell sites in Ohio.

Between *c.* 3000BC and 2500BC there were significant changes in the structures at Stonehenge culminating in the stone sarsen trilithons and the lintelled sarsen circle. Elsewhere, a number of timber structures were built about or before 2500BC including Arminghall, Woodhenge and Durrington (Parker Pearson 2005: 60-61; 2007; 2012: 80-91; North 1996: 345-392; Bradley 2007: 122-42). North proposed that these were probably lintelled<sup>10</sup>. North (1996: 436-40, 456-58) discusses the Q- and R-rings and the probability that some stones were lintelled. This seems to be confirmed by reshaping of some of the bluestones (Gibson 2005: 143-51). Parker Pearson (2007; 2012) has shown that the south circle at Durrington and the sarsen structures at Stonehenge are both dated to about or soon after 2500BC.

There are multiple indications that a feature of all these structures was alignments for solar and lunar observations, particularly solstices and lunar standstills (Renfrew 1973: 261-65; North 1996; Parker Pearson 2012). North applies the ideas of lintelled rings of posts to the final phase at Stonehenge involving the lintelled sarsens. He shows that when approaching the monument from the northeast up the avenue, the uprights and lintels would have prevented the passage of any light rays until the region of the Heel stone was reached when two 'windows' would have opened up. The lower window would have allowed viewing of the midwinter setting sun<sup>11</sup> and the upper one the moon at its monthly southern limits during the year long period of the minor standstill (North 1996: 441-65, 470-75; Sims 2006). The position of the moon in the upper window each month would have varied erratically because of the 'wobble' and because the moon would rarely be close to its monthly extreme at the time of observation. It is possible that these erratic movements alerted the observers to some previously unknown property of the moon. Whether or not this is so, knowledge of the 'wobble' would have been a necessary precursor for the establishment of the Argyll alignments 800 years later.

### **Evidence for a Hierarchical Society**

The developments in the Stonehenge area around 2500BC suggest a stratified society. The major construction phase at Stonehenge and Durrington Walls must have been carefully planned which in itself suggests a leadership of some sort. Parker Pearson has found that the workforce lived at Durrington Walls and probably numbered about 4,000. Such a workforce would have required significant organisation with a chain of command (Parker Pearson 2012: 109-127). That a hierarchical society existed or developed about this time has previously been suggested by a number of observers (Mackie 1977: 146-49; Renfrew 1973; Whittle 1981: 297-342).

It seems likely that the inner spaces of Stonehenge would have been used by a relatively small number of people (Bradley 2007: 141-42).

Would the architects of Stonehenge, having gone to such pains to plan this extraordinary series of monuments, not have kept permanent control over its use? The necessary knowledge had by this time become very sophisticated, and it is hard to believe that it was shared by the population as a whole. (North 1996: 468)

It is therefore reasonable to suppose that a hierarchical society of some sort existed when the Argyll alignments were set up.

## **Discussion on Ritual, Culture and the Results Found**

It seems likely that many Neolithic structures were intended to reflect on earth what was observed in the heavens for ritual or ceremonial purposes, when we expect that no great precision would have been required. It is a mistake to assume that we should interpret any astronomical indications in our present day terms; instead it is necessary to try to determine what such indications may have meant to the people who set them up. For example an alignment on the winter solstice could show a desire to 'turn the sun round' (Ruggles 1999: 148).

The reason for the orientations of long barrows, cists etc. towards certain positions of the heavenly bodies was doubtless ritual/religious and there is no suggestion that this did not remain the primary purpose even in the later structures: Stonehenge, the timber circles at Durrington, Woodhenge etc. as discussed above.

However perhaps astronomical reasons might eventually develop:-

It can hardly be doubted that the motivation of those responsible for Stonehenge was of an essentially religious character. To explain Stonehenge entirely in terms of religion, however, would be only to escape from astronomical enthusiasm by embracing its religious counterpart. (North 1996: 519).

and

By and large, the rules by which the gods are believed to operate will be human rules, .... When the gods are celestial objects, however, sooner or later it will be found that they are more predictable than are creatures of emotion. And in such ways as this, religion may nourish astronomical science, and in doing so need not lose its ascendancy. (North 1996: 520)

Nonetheless, North (1996:10) adopts a religionist model for interpreting monumental alignments.

The investigation described in this paper found strong evidence for planned precise lunar alignments *c.* 1700BC. The following is an attempt to show how this development might be related to earlier beliefs.

The monumental structures built earlier were just that; monumental, and intended to dominate the landscape (Thomas 1999: 34). This should be contrasted with lunar alignments which cannot be considered monumental in the above sense.

The high fidelity lunar alignments only appear some 800 years after Durrington, the sarsen phase at Stonehenge etc., and seem to have arrived fully developed. Perhaps earlier less successful attempts were removed or modified.

But why mainly in northern Europe and especially Scotland? There are two possible reasons:- First, because of the high latitude, the moon at its southern extreme would be seen passing low across the horizon and be very obvious (Wood 1978: 188); and second, the rugged terrain is suitable for foresight features.

So what evidence is there that ritual or religious purpose might have influenced or even determined the setting up and or use of the precise lunar alignments in Argyll?

a) Of the thirteen alignments found only two are for the minor standstill. This contrasts with the importance of the minor standstill at Stonehenge (North 1996: 441-451, 470-75) and the marked emphasis found at the West Kennet avenue by Sims (2010): 58 alignments for the minor standstill, 30 for the major standstill. A possible explanation is that although the minor standstill is obvious as an event it is more difficult to clearly identify any of the key lunar positions at the minor as opposed to the major standstill. This arises because the moon is not in a unique position; all other lunations pass the minimum point (Thom and Thom 1980: S80; Thom A.S. 1981: 17). The fact that there are so few precise alignments found for the minor standstill in this investigation could imply that the part any ritual considerations played in setting up the alignments was a small one.

b) Four alignments are for the midsummer southern full moon (Fig. 10). In Britain many monuments of the late Neolithic and EBA show an orientation towards the southwest; e.g. recumbent stone circles, Clava cairns and stone rows (Burl 1981; Ruggles 1999). These alignments focus on the winter solstice sunset and the southern major and minor moonsets thereby pairing sun and moon which could be in the same region of the sky. Ruggles links the full moon in this pairing. There is however no full moon in the southwest in winter and so Sims believes that Ruggles is mistaken to emphasise full moon. As Sims has pointed out, at midwinter sunset it would be 'dark moon'<sup>12</sup>, not full moon (Sims 2006). Thus Stonehenge shows a clear association of 'dark moon' and the midwinter sunset. Sims also shows that from an anthropological standpoint, 'dark moon' was considered important.

These ideas are compared to the lunar alignments found:-

There would be no 'pairing' with the horizon setting position of the southern standstill full moon as the sun could never be so far south.

While the 'dark moon' does pair with the winter solstice, there is no evidence from this study that that was recognised. The relevant alignment could only be set up at full moon and the alignment at dark moon thereafter assumed. The four southern full moon alignments are associated with the other nine alignments and two of them are apparently paired with alignments for quarter moons (Achnabreac with Carnasserie and Lower Fernoch with Barnashaig). (Opposite 'wobble'; geographical and/or structural relationships). Thus their associations may lie elsewhere than dark moon.

The argument for lunar alignments in this region does not require corroboration by any ritual matters, interesting though that would be. Whatever their purpose, the case for their existence stands on its own empirical evidence.