

The solarization of the moon: manipulated knowledge at Stonehenge

Lionel Sims 2006

Cambridge Archaeology Journal,
16, 191-207.

Sarsen Stonehenge. What do you see?



A 6,000-year-old town is hidden in this hole

... and archaeologists are looking into it

BY STEPHEN HULL

A GIANT Neolithic settlement has been unearthed at the bottom of a quarry, it was announced yesterday.

The 6,000-year-old village is the size of two football pitches and includes buildings, a human burial pit, tools, pottery and ritual objects.

Archaeologists say it may be one of the biggest ever found. Parts of the site, at Milfield Village, Northumberland, pre-date Stonehenge.

It is highly unusual to uncover buildings from the Neolithic period.

English Heritage's Dr Jonathan Last said: "This exciting discovery offers huge potential to improve our understanding of Neolithic ways of life in this part of England."

Dr Clive Waddington, director of the archaeological site, said: "This is one of the most important sites of its kind to be discovered."

"It provides an exciting opportunity to further understanding of Britain's first farmers, their way of life and beliefs about the world."

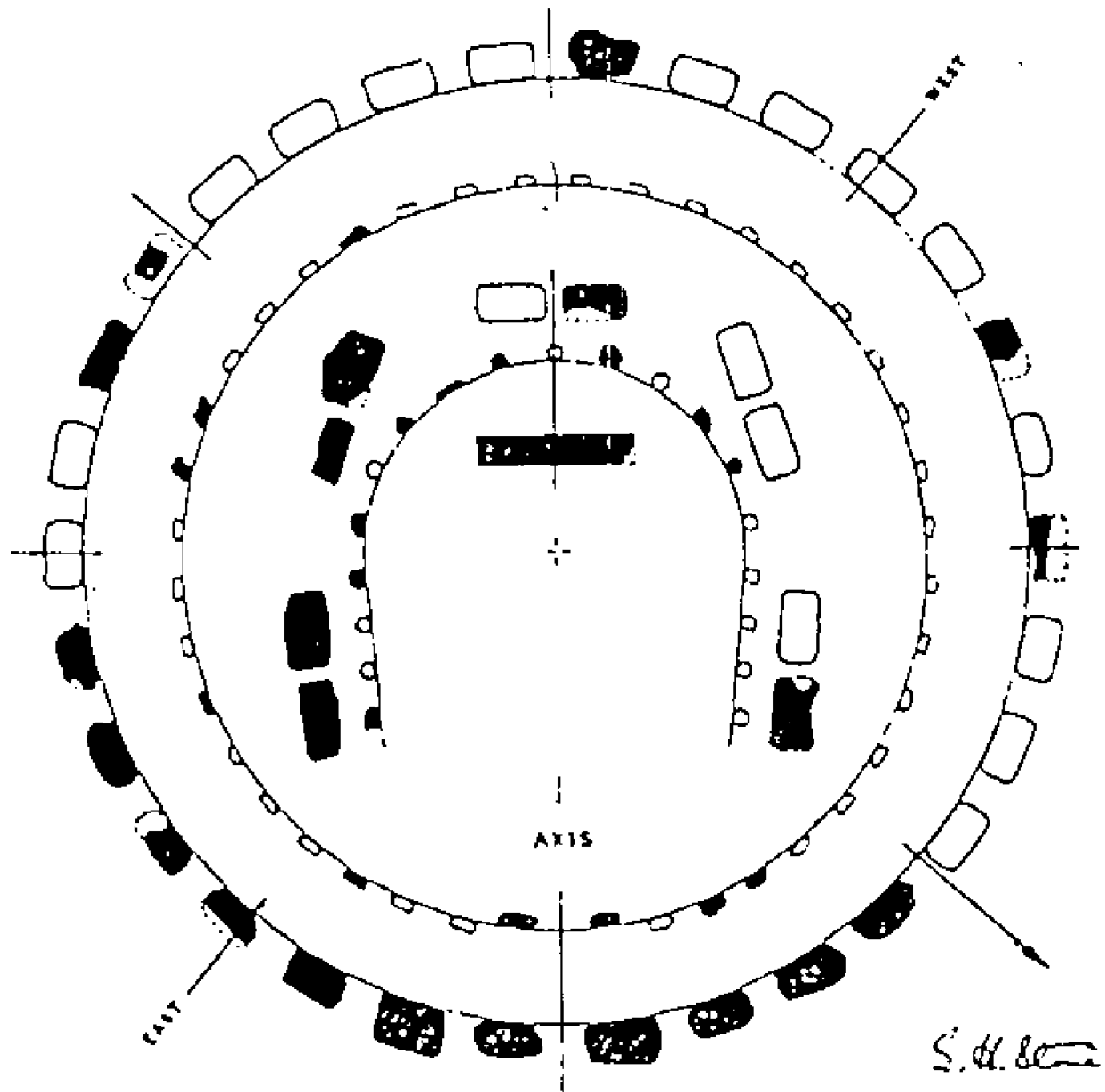


Pit stop: Archaeologists peer into the ground to check for further Neolithic relics at the quarry

Picture: PA

Plan diagram of
central area of sarsen
Stonehenge (Phase
3v-vii).

Preferred
representation of
archaeology – site
excavation method.



The start of 'civilisation' after 'small scale pre-literate society'?



Main extant archaeological theories for origins of agriculture:

1. Climate change – ecological circumscription - oases – invention of agriculture. (Gordon Childe 1940's).
2. Hilly flanks, not oases, not climate – technological pre-adaptation for invention of agriculture. (Braidwood 1950's).
3. Over-population – agriculture last resort of hunters. (Binford 1960's, Cohen 1970's).
4. ***Accumulator's initiated agriculture within conditions of plenty for social and competitive reasons, usually for feasting (Barbara Bender, late 70's; Hayden 1980's).***

Main extant archaeological theories for origins of agriculture: NONE OF THEM WORK!

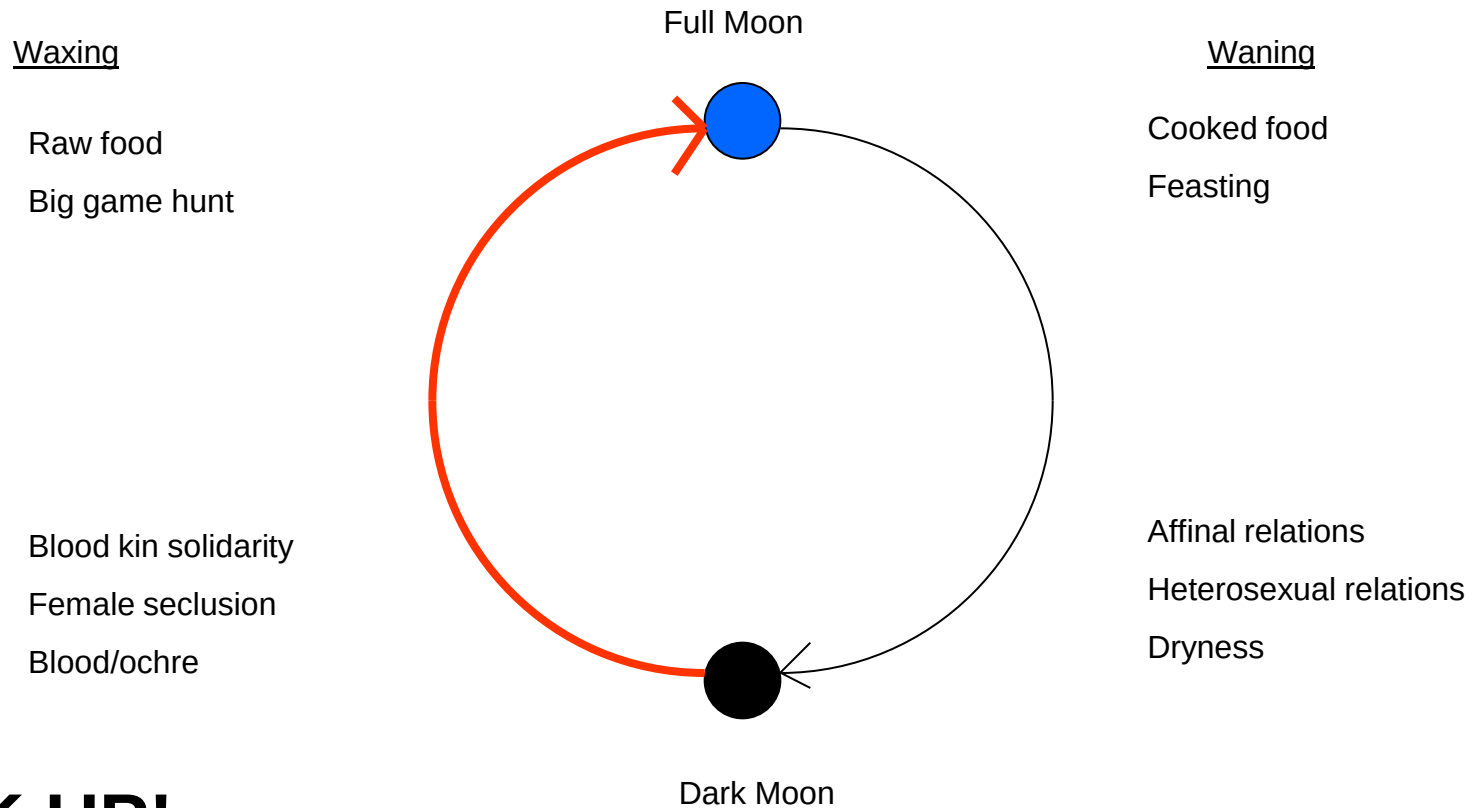
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 4. ***Accumulator's initiated agriculture within conditions of plenty for social and competitive reasons, usually for feasting (Barbara Bender, late 70's; Hayden 1980's).***
- All these theories focus on either external factors such as climate change, or processes internal to agriculture – first domesticates or accumulators etc.
 - None look for internal contradictions amongst the antecedent hunters

The journey out of Africa (2)

- First successful migration out of Africa of modern humans about 80 k.y.a.
- Palaeolithic big game hunters peopled the world, out-competing other hominids, following the animals.
- By 10 k.y.a global extinction of mega-fauna.
- 'Mesolithic crisis' (Childe).
- Seasonality stresses of high latitudes.

Collapse of 'sex-strike' solidarity?

Knight 1991, Blood Relations.



LOOK UP!

And think like an anthropologist!

C.J.Holden & R. Mace 2003,
 'Spread of cattle led to the loss of
 matrilineal descent in Africa: a
 coevolutionary analysis.'
 Proceedings of the Royal Society,
[http://courses.washington.edu/evpsych/Holden%20](http://courses.washington.edu/evpsych/Holden%20&%20Mace%20-%20matriline%20and%20cattle%20-%20PRSL%202003.pdf)
[&%20Mace%20-](http://courses.washington.edu/evpsych/Holden%20&%20Mace%20-%20matriline%20and%20cattle%20-%20PRSL%202003.pdf)
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[%20PRSL%202003.pdf](http://courses.washington.edu/evpsych/Holden%20&%20Mace%20-%20matriline%20and%20cattle%20-%20PRSL%202003.pdf)

'...matrilineal cultures with
 cattle are far more likely to
 adopt patrilineal or mixed
 descent than the other way
 round, whereas cattle-owning
 cultures with patrilineal or
 mixed descent rules rarely, if
 ever, become matrilineal.'

Also:

- A. Richards (1950), Some types of family structure among the Central Bantu.
- A. R. Radcliffe-Brown (ed.), African Systems of Kinship and Marriage (Oxford: UP).
- M. Douglas (1969), 'Is Matriliney Doomed in Africa?'
- Schneider & Gough (1961), Matrilineal Kinship

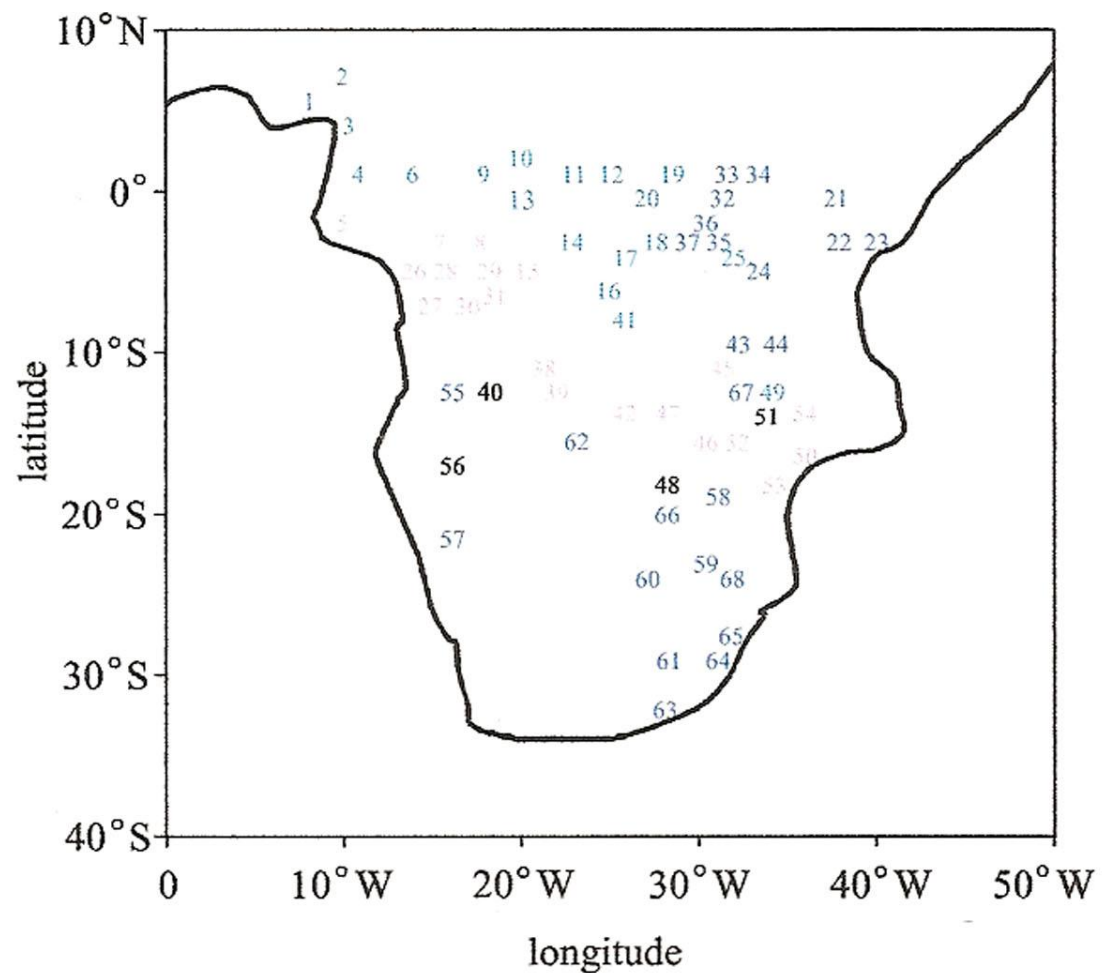


Figure 1. Map of 68 Bantu- and Bantoid-speaking cultures. Latitude and longitude were taken from Murdock (1967). Numbers correspond to column 1 in table 1, which gives the name and language of each culture. Descent rules and presence or absence of cattle are indicated by colours (green: patriliney or mixed descent, no cattle; blue: patriliney or mixed descent, with cattle; red: matriliney, no cattle; black: matriliney, with cattle).

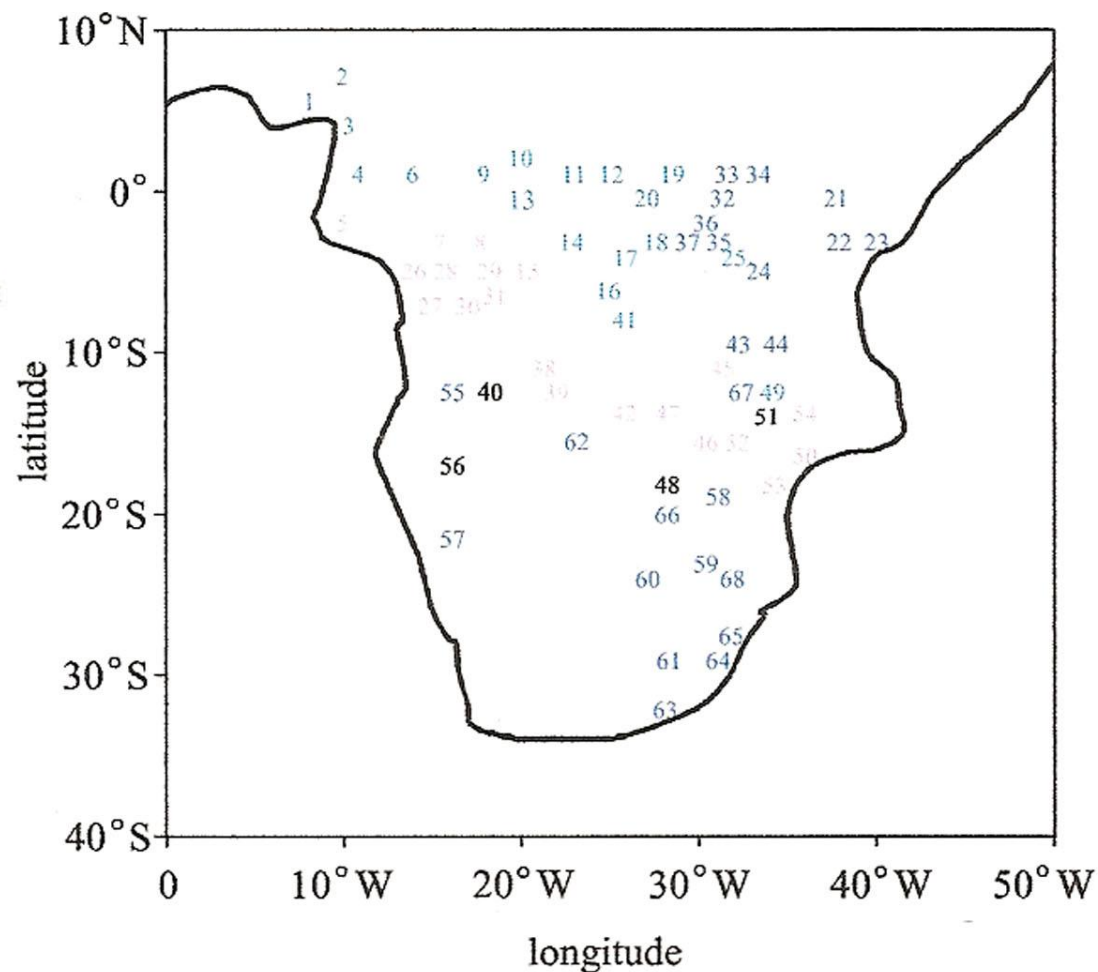
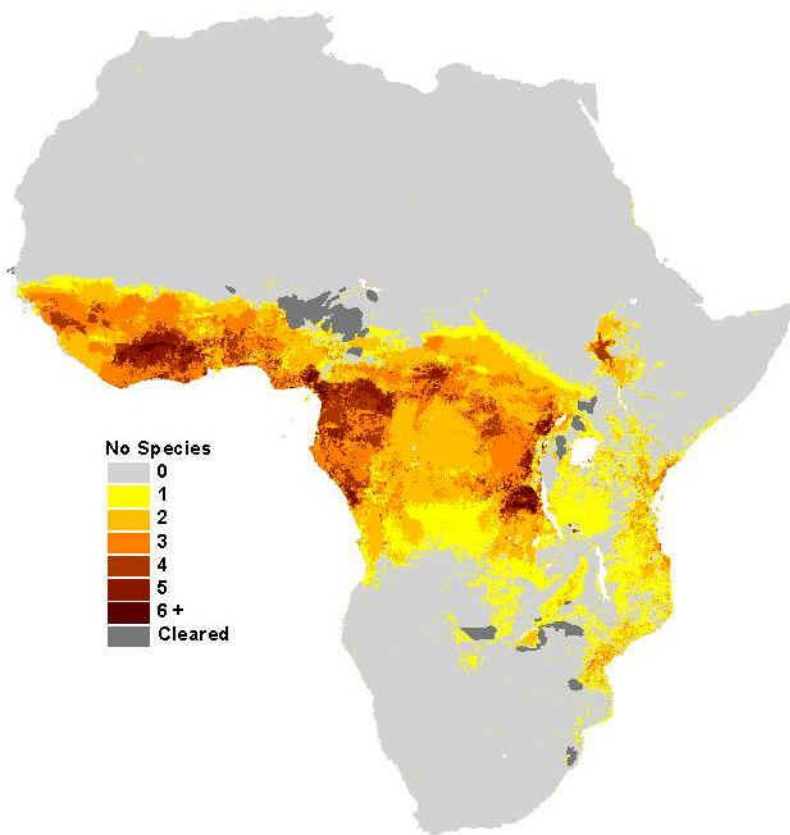


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Cultural anthropology of cattle herders: sexual politics - think economics – think cattle!



1. Neolithic cattle herders - bride service to bride price – ‘war’ between kith and kin.
2. Young men rely on senior agnates to receive cattle to gain a wife – ancestor worship.
3. Lost matrilineal solidarity replaced with male monopolisation of ritual power – male sacrifice.
4. Negatively coded reassertion of matrilineal descent rules.

Palaeolithic – Mesolithic – Neolithic – Early Bronze Age =

Gender counter-revolution

- From Palaeolithic hunting to Neolithic cattle herding =

Bride service replaced by bride price.

- The economics of big game hunting sustains the sex-strike strategy,

and the economics of cattle-herding undermines it.

Emergent model:

**archaeology 2 +
sex strike theory +
cultural anthropology of cattle herders**

predicts:

1. Reversal of gender dynamics from forager to herder: wed-locked women.
2. Slow emergence of elite males.
3. Male monopolisation of ritual power.
4. Male appropriation of 'gender of power': wrong species, sex, time – ritually powerful men associated with animals, sexual ambiguity/ androgyny, blood flow.
5. Conservative disengagement from monthly dark moon rituals to lunar-solar or solar dark moon rituals.
6. Perverse, rather than ludic, gender masquerade: human sacrifice.

How did human culture begin?

Competing hypotheses

	Neolithic Revolution		
Invention of “gods”	Late (about 10-6k years ago)		
Syntax of cosmology	Simple		
First cosmic “god”	Sun		
Secular referents of “gods”	Elite males		
Political function of religion	Calendars and elite male rule		

How did human culture begin?

Competing hypotheses

	Neolithic Revolution	Palaeolithic Revolution	
Invention of “gods”	Late (about 10-6k years ago)	Early (about 120k years ago)	
Syntax of cosmology	Simple	Elaborated	
First cosmic “god”	Sun	Moon	
Secular referents of “gods”	Elite males	Ancestral females	
Political function of religion	Calendars and elite male rule	Preserve sibling solidarity	

How did human culture begin?

Competing hypotheses

	Neolithic Revolution	Palaeolithic Revolution	Neolithic counter-revolution
Invention of “gods”	Late (about 10-6k years ago)	Early (about 120k years ago)	Early (in NW Europe 6k-4k years ago)
Syntax of cosmology	Simple	Elaborated	Complex and alienated
First cosmic “god”	Sun	Moon	Sun appropriates Moon
Secular referents of “gods”	Elite males	Ancestral females	Elite male masquerading as or controlling bleeding ‘female’
Political function of religion	Calendars and elite male rule	Preserve sibling solidarity	Conceal/embed emergent male rule within ancient lunar cosmology

How to interpret a unique monument?

Most archaeoastronomers use statistics to test the null hypothesis that any alignments are accidental.

However, they break this methodological rule for unique monuments.

If any unexplained design features can be explained by an 'astronomical' alignment, then explain it that way.

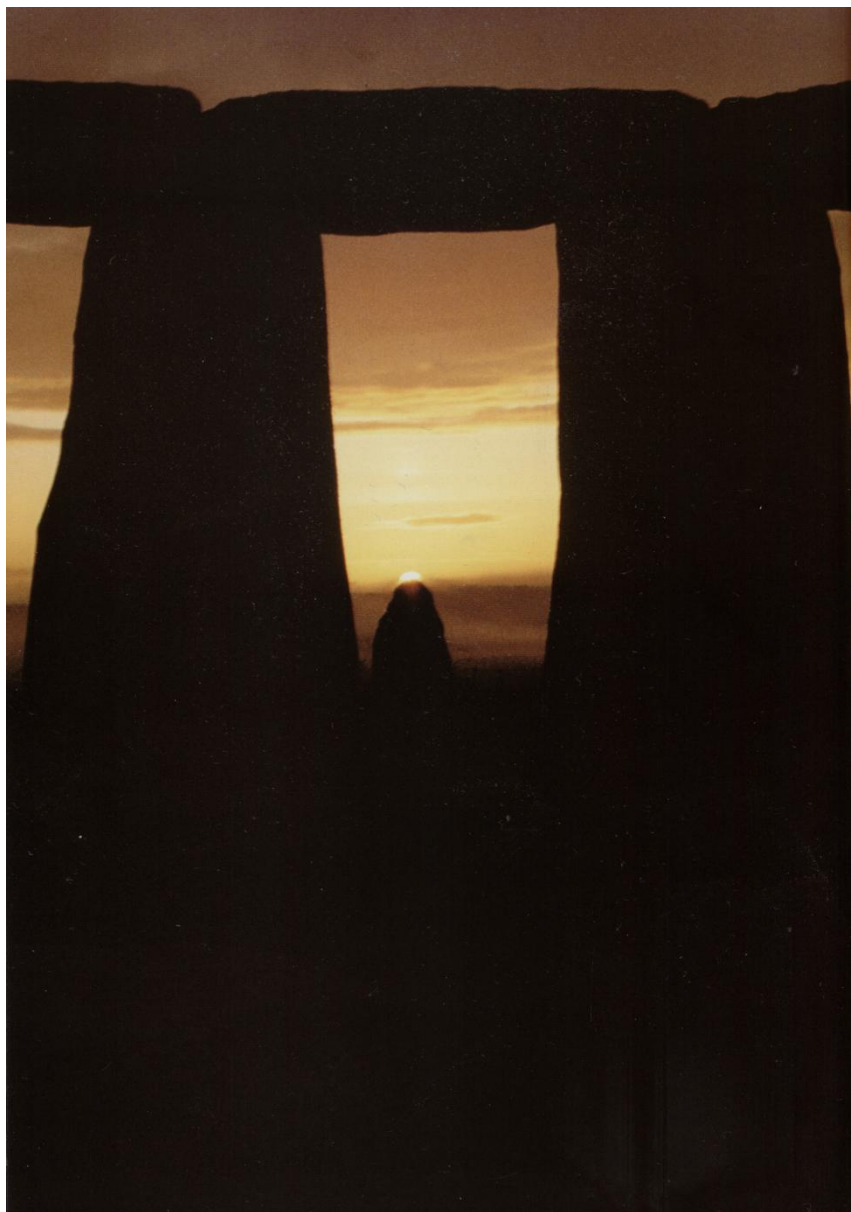
Ruggles 1999 on Newgrange and Stonehenge.

John North 1996 used this method.



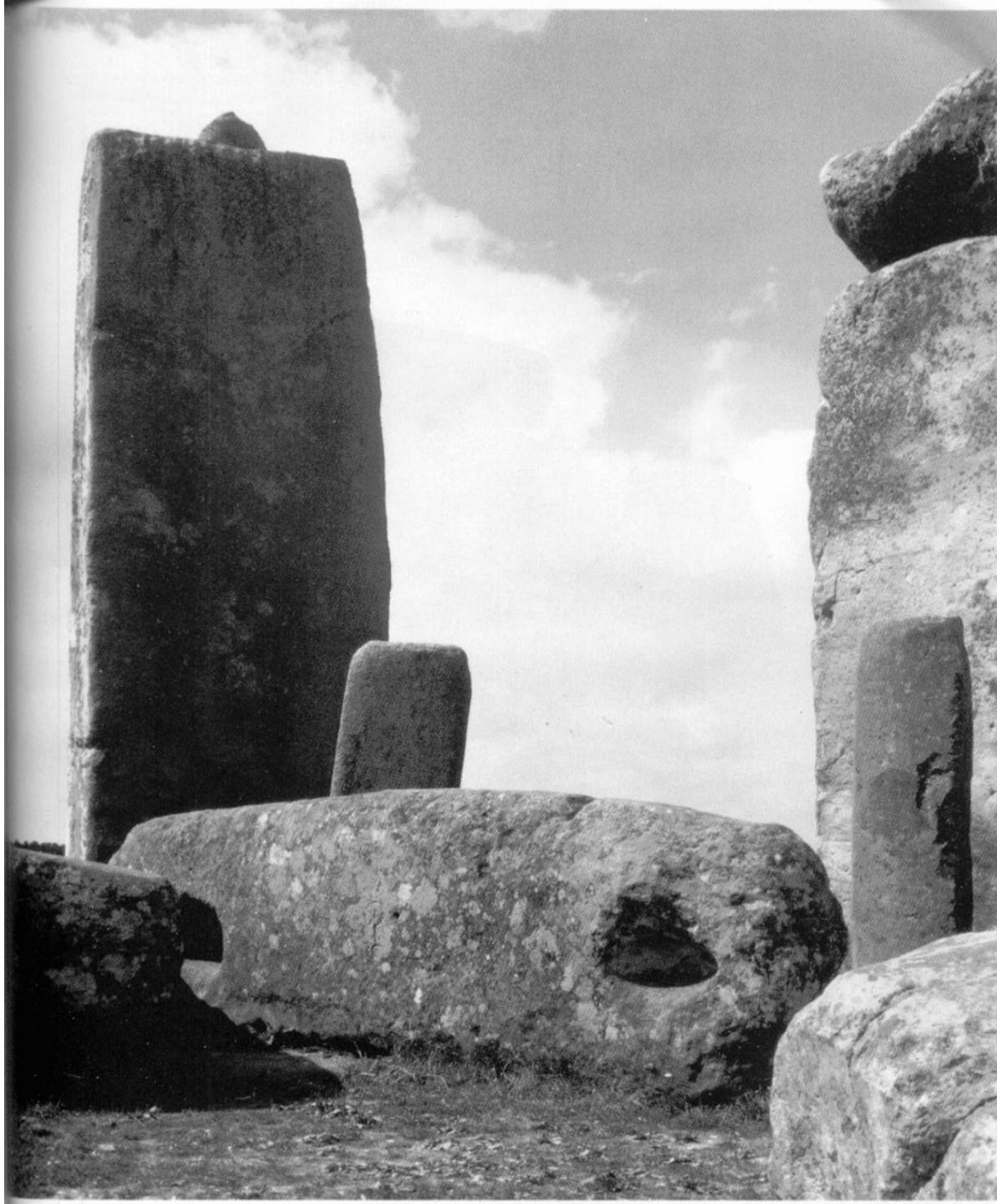
How to test theory?

- ‘Thick description’ of monument details – the ethnographic method.
- Theoretical sampling – each theory will be able to explain certain features of a monument’s design.
- The theory that can explain the most features and properties of a monument in the simplest formulation out-competes others that can’t (Law of parsimony: Occam’s razor).









Monumental architecture:

A maximum of material with a minimum of design.

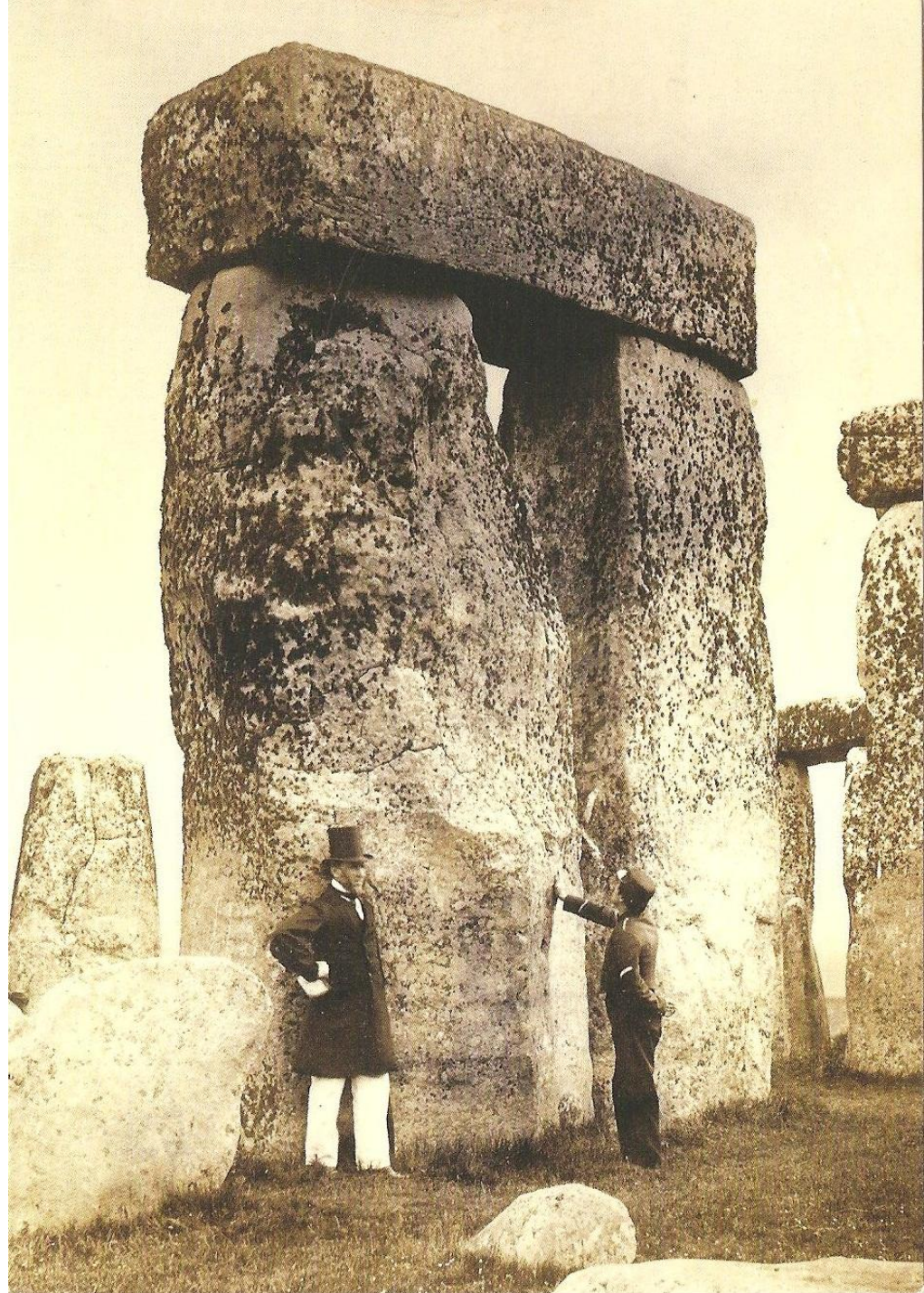
All cultures all over the world, in the transition from hunting to agriculture, build monuments. They do this *before* they are sedentary!

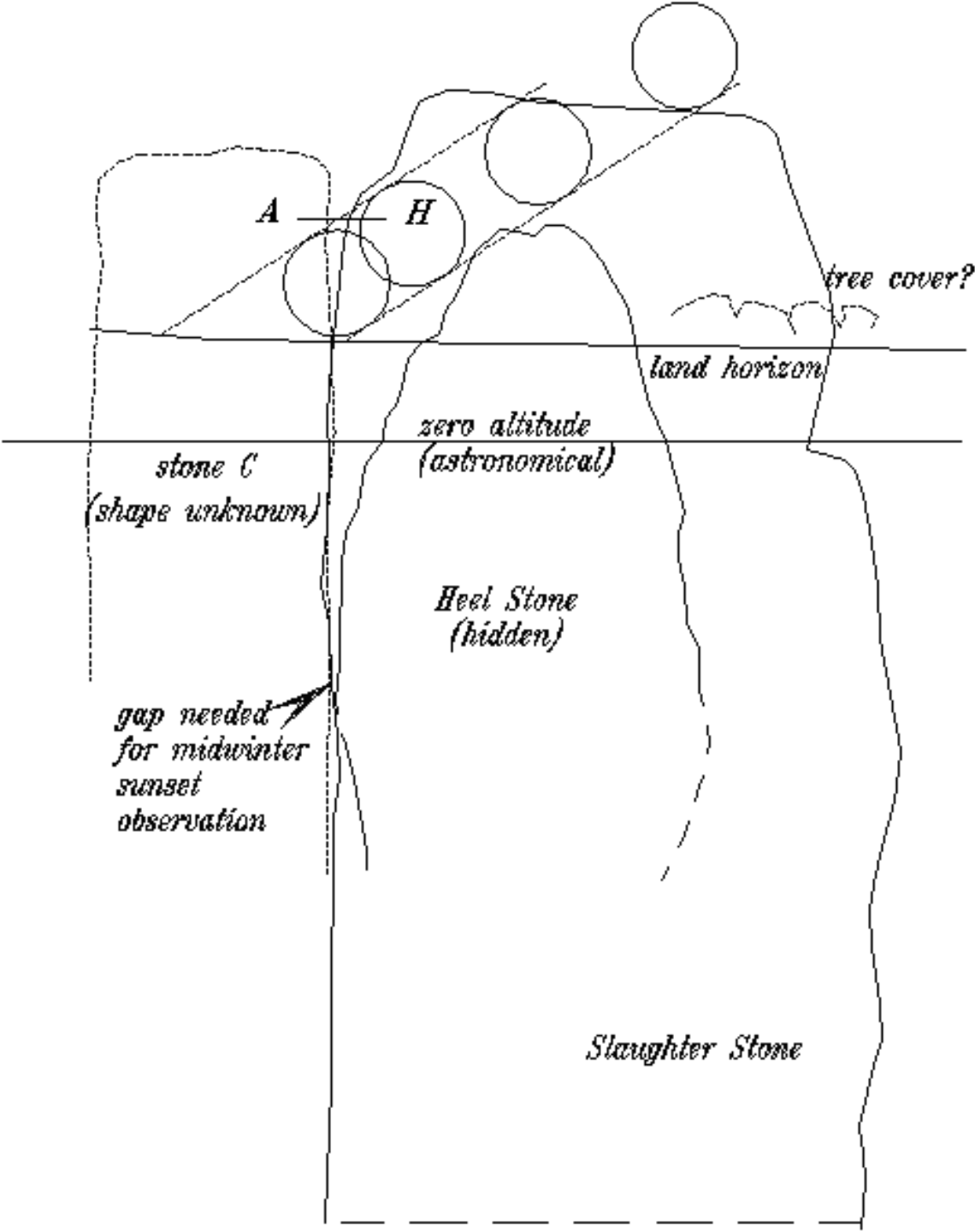
Earth and stone monuments in British Isles start to be built at beginning of the Neolithic.

Defining characteristic of British Neolithic is monument building.

Monument building ends at end of Early Bronze Age, about 1,600BC or 3.5 thousand years ago.

Palaeolithic (up to 10kya) – Mesolithic (up to 6kya) – Neolithic (up to 4kya) – Early Bronze Age (up to 3.5kya).





- But what if a stick, now gone, once marked the centre position? Could this generate an 'accurate' alignment?
- Standing at the centre of Stonehenge, summer solstice sunrise is 3 solar diameters (1.5 degrees) to the left of Heel Stone.
- Human eye can detect displacement of one-sixth of one degree (one-third of a lunar diameter).
- Therefore Heel Stone alignment is nine times more inaccurate than needs be.
- Yet, Stonehenge is built on the side of a hill, in which the ground drops a metre across the axial diameter of the circle, and 1.7 metres to the Heel Stone.
- Lintel tops are level to an accuracy of 18 cms across a diameter of 30 metres.
- Why accept accuracy in lintel architecture but not in a solar alignment?

Gaps surrounding a space!

No marked centre.

No backsight –
through what eye?

By adjusting your
'centre' position, and
by switching eyes,
you can make
Stonehenge align on
anything and
everything!

Therefore, reject all
claims for central
alignments when no
backsight.

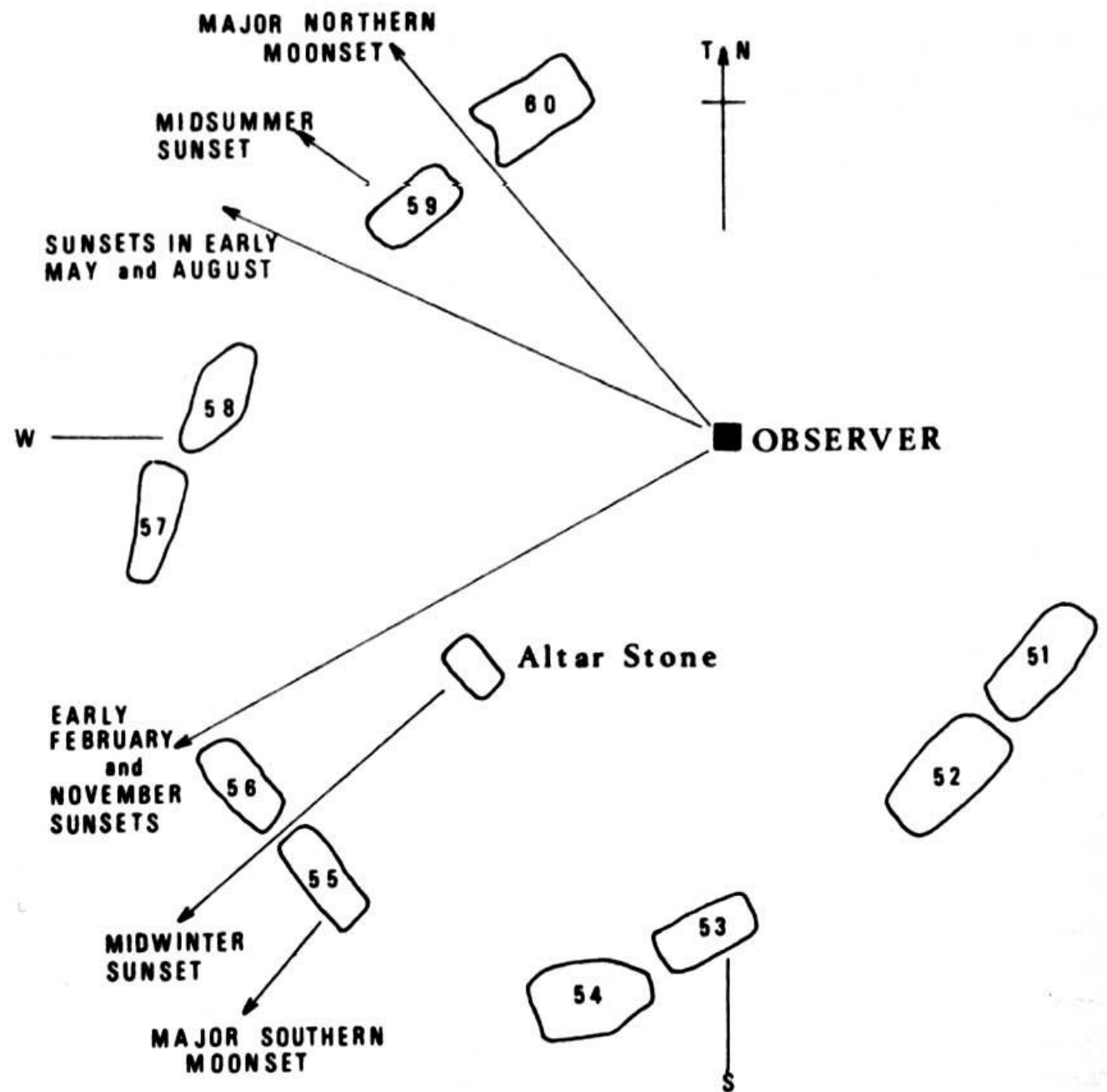


Fig.12. The Possible Trilithon 'Calendar'.

Solstice calendar marker?

- Need only two posts to mark a solstice.
- How do you explain the remaining 120 or so stones, or the lintels?
- The unaided human eye cannot detect any change in the solstice horizon rise and set points for at least three days before and after the actual solstice.
- Therefore the solstice is not suited as a calendar horizon marker.
- Traditional societies tell the time in much simpler and more useful ways:
 - a) Star positions to tell the hour.
 - b) Constellations observed to tell the season.
 - c) Solstice and solar positions to tell the time of year.
 - d) All these over-layed with natural cycles (flower blooming, animal behaviour etc.) to fine tune their own calendar. Much better than 'abstract' time.

Clive Ruggles 1999:

- 83: ‘...why, when the time of year could be determined quite adequately for agricultural purposes by horizon observations without the necessity for prominent markers, or indeed in other ways entirely, would Neolithic and Bronze Age communities have gone to all the trouble of ‘enshrining’ astronomical observations in stone?’
- 81: ‘...[we] need to consider the different social contexts within which prehistoric astronomy might have operated.’

McCluskey 1998, 14.

- ‘...[M]egalithic astronomy does not fit the simple model of an agricultural calendar. Lunar observations are only imperfectly related to the passage of the seasons and seem more related to lunar rituals than to the keeping of a calendar. The solar alignments indicate equal artificial divisions of the year rather than the irregularly spaced, natural times of agricultural activities. The archaeological evidence for ceremonial and trading assemblies at sites where astronomical alignments marked these regular divisions of the year suggest a more complex interaction of astronomy, society, ritual, and trade than that of a simple farmers’ calendar.’

Monumental architecture adopted by all cultures during transition from hunting to agriculture.

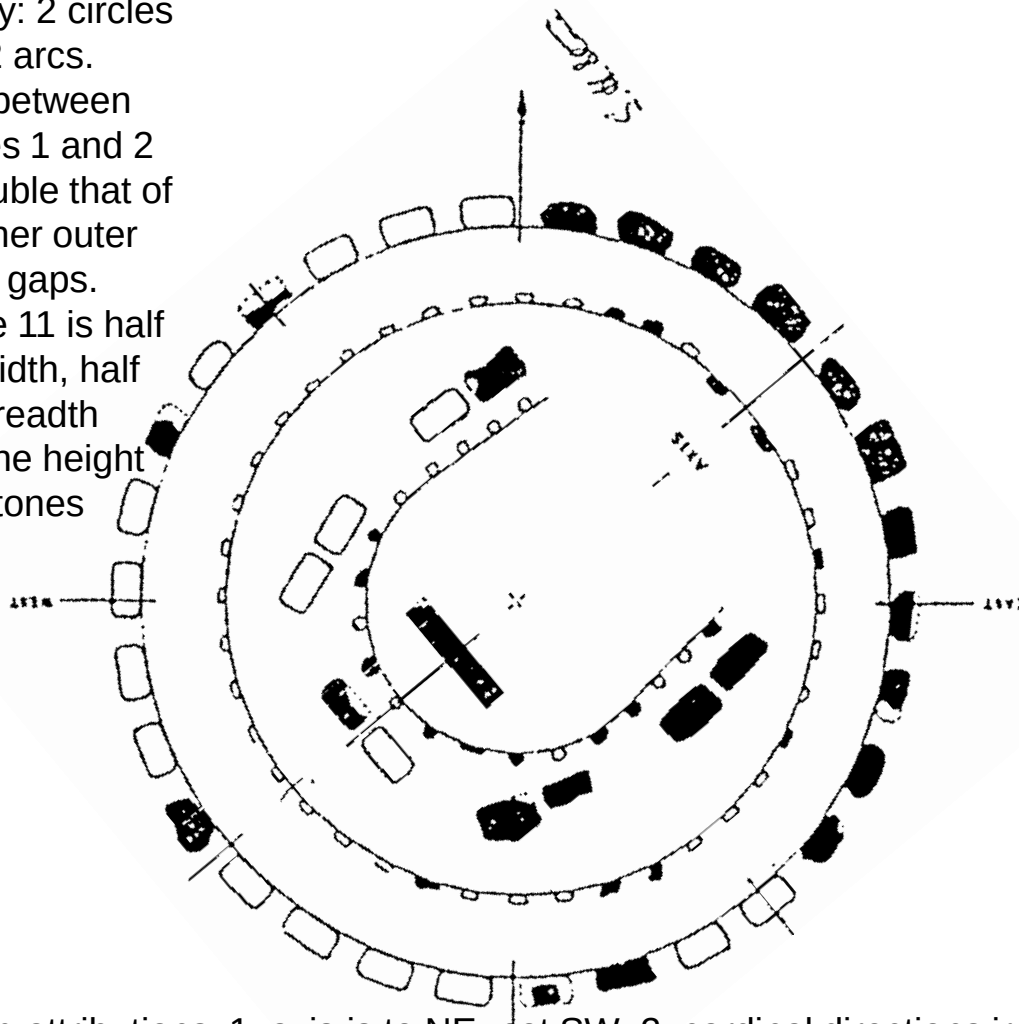
Therefore need an anthropology of hunters in transition.

Darwinian signalling theory for monumental stone architecture:

- To overcome 'sales resistance' the signal must be inflated. Internal scepticism overcome or moderated by massive public works.
- Handicap theory: external threats are intimidated by scale and sophistication of monuments. An 'arms' race of monuments between each local or regional group.
- Predicts an efflorescence of monuments of roughly equivalent amounts of social labour.
- But it does NOT explain the details of architectural design – just mass.

Cropped plan view
tells us:

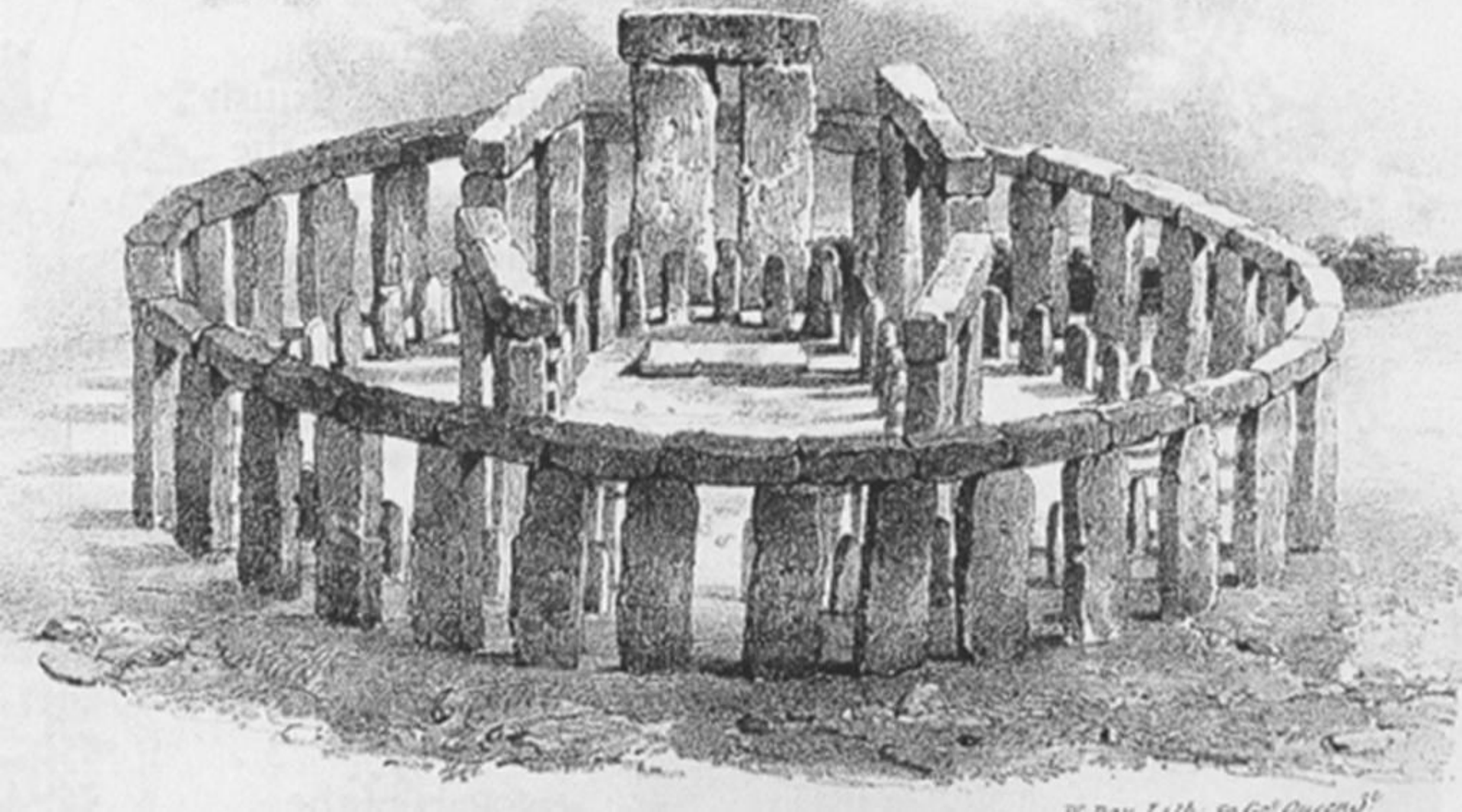
1. Binary: 2 circles
and 2 arcs.
2. Gap between
stones 1 and 2
is double that of
all other outer
circle gaps.
3. Stone 11 is half
the width, half
the breadth
and half the height
of other stones



- **Cropped plan
view does not tell
us what the
monument looks
like in 3D in its
local landscape –
as the builders
intended it to be
seen!**

Misleading attributions: 1. axis is to NE, not SW; 2. cardinal directions irrelevant to architecture; 3. axis does not align on centre of Avenue; 4. centre is not marked; 5. Altar stone was not prostrate; 6. spacing between stones, especially bluestone circle, not regular; 7. some stones not designed to be regular (e.g. 1, 11, 16, 155, 156); 8. leaves out: lintels, slope of ground, horizons, variable height of stones; 9. cropping leaves out Heel, Station Stones, Aubrey Holes, ditch and bank, Avenue

Look at sarsen Stonehenge ethnographically....



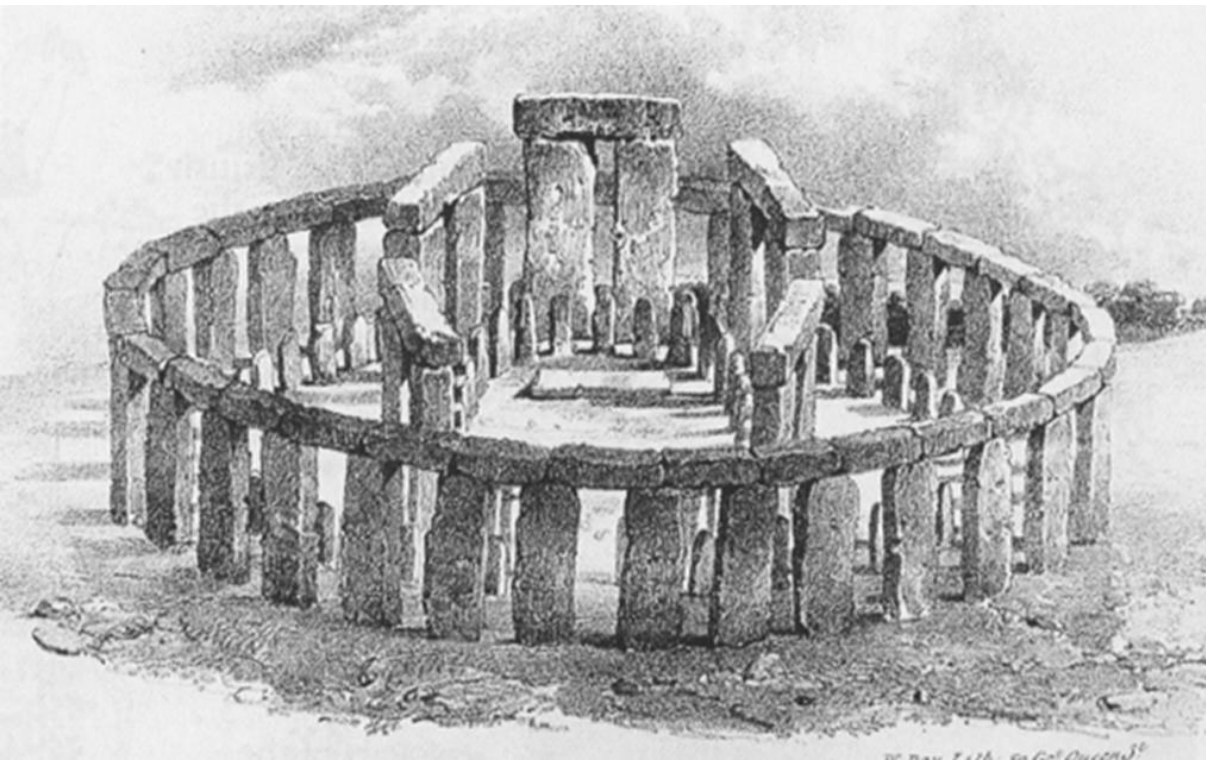
NB: nearest trilithons focus on Heel Stone; gap between stones 1 & 30 twice the width of all the other outer circle gaps; Altar Stone upright and placed along axis; trilithon and bluestone horseshoe axes align on Heel Stone; stepped height of trilithons and bluestone horseshoe has largest stones facing Heel Stone.



2000 BC - an idealised view from the south showing the half-width sarsen

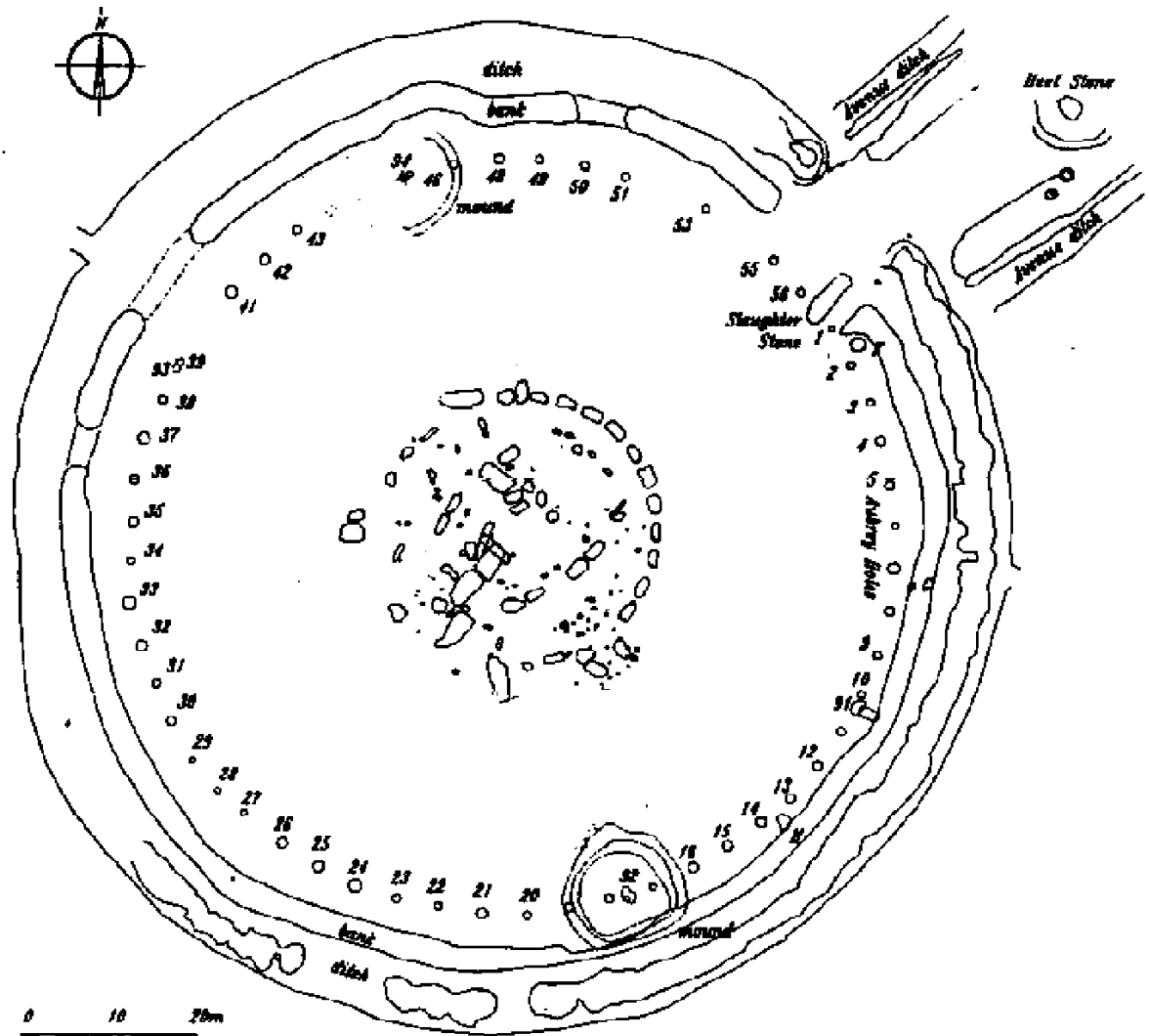
1. Stone 11 half-height, half-width, half-breadth of all other stones in sarsen circle.
2. Trilithons stepped in ranked height, ascending to the grand trilithon.
3. Lintel 156 pitched forwards to present 90° face at eye-height at Heel Stone.

1. Trilithons 50/51 and 59/60 point to Heel Stone.
2. Lintel 156 pitched forward to present 90° face to Heel Stone observer.
3. Heel Stone sides parallel and 'vertical' to above eye height.
4. Heel Stone surrounded by a flat-bottomed circular ditch with ledges.



26. The Heel Stone viewed from the southeast. (*English Heritage Photographic Library*)

1. Sarsen stonehenge is centred on and replaces earlier structures built up to 500 years before.
2. NE gap preserved in all 'four' 'stonehenges', and Avenue one of last additions, preserves NE as main entrance.
3. Subsidiary south entrance through ditch leads to stone 11.
4. Station stone rectangle 91, 92 with ditch, 93, 94 with ditch.





Gap through subsidiary southern entrance leads straight to half-size stone 11.

Notice:

1. Window above stone 11 and below lintel of trilithon 53/54.
2. Stone 16 behind grand trilithon stone 56.
3. Station stone 93 on middle left of picture.











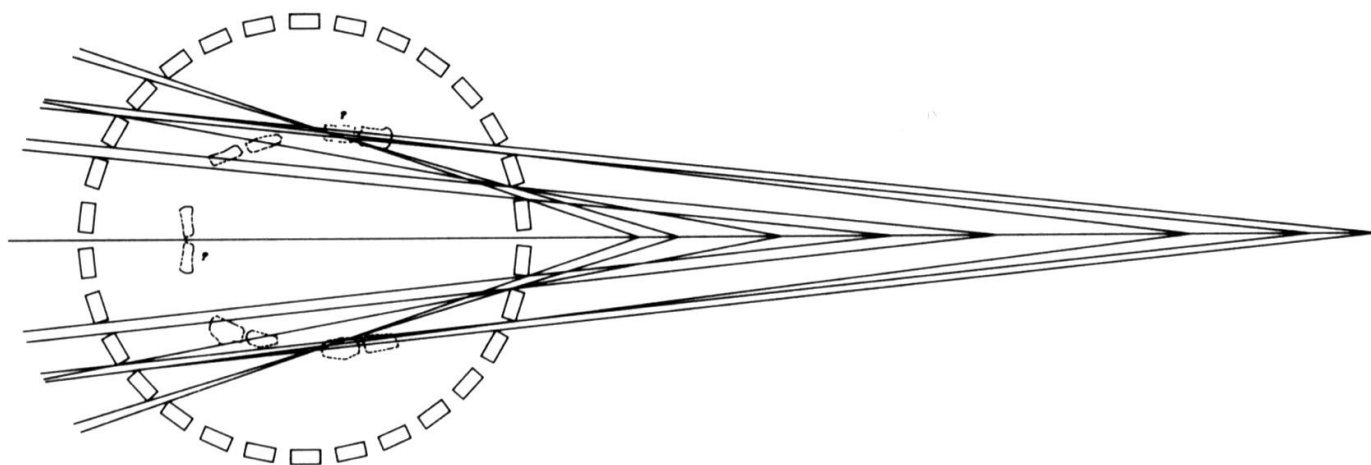


FIG. 173. The blocking of lines of sight by the ring of thirty sarsen uprights, for various critical positions of the observer.

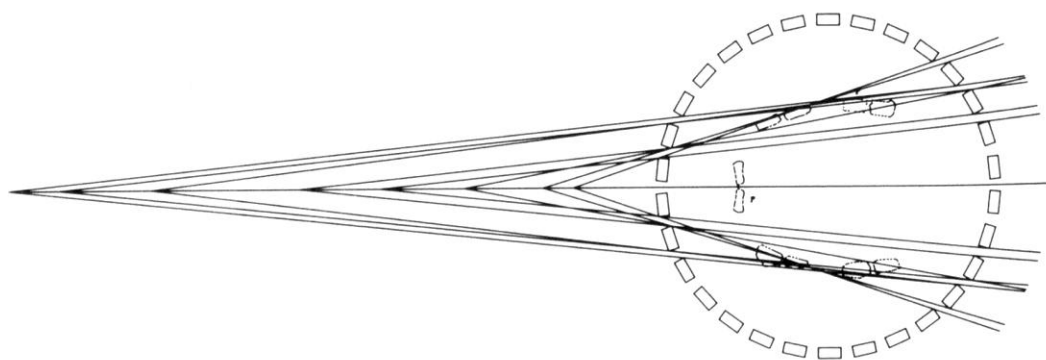
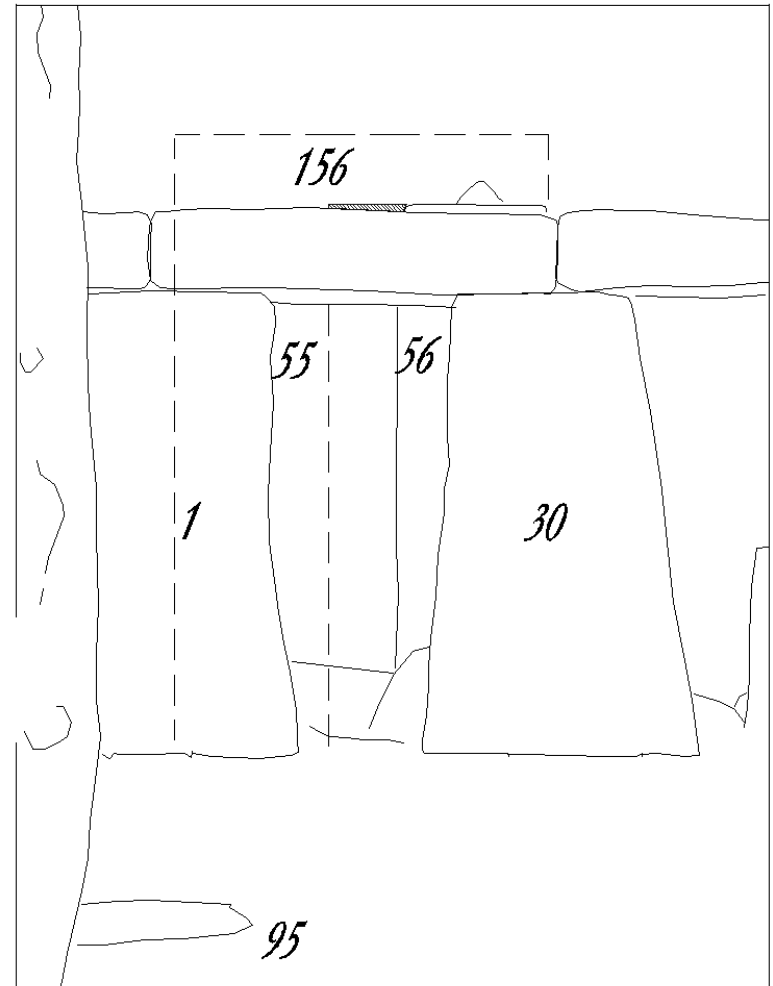
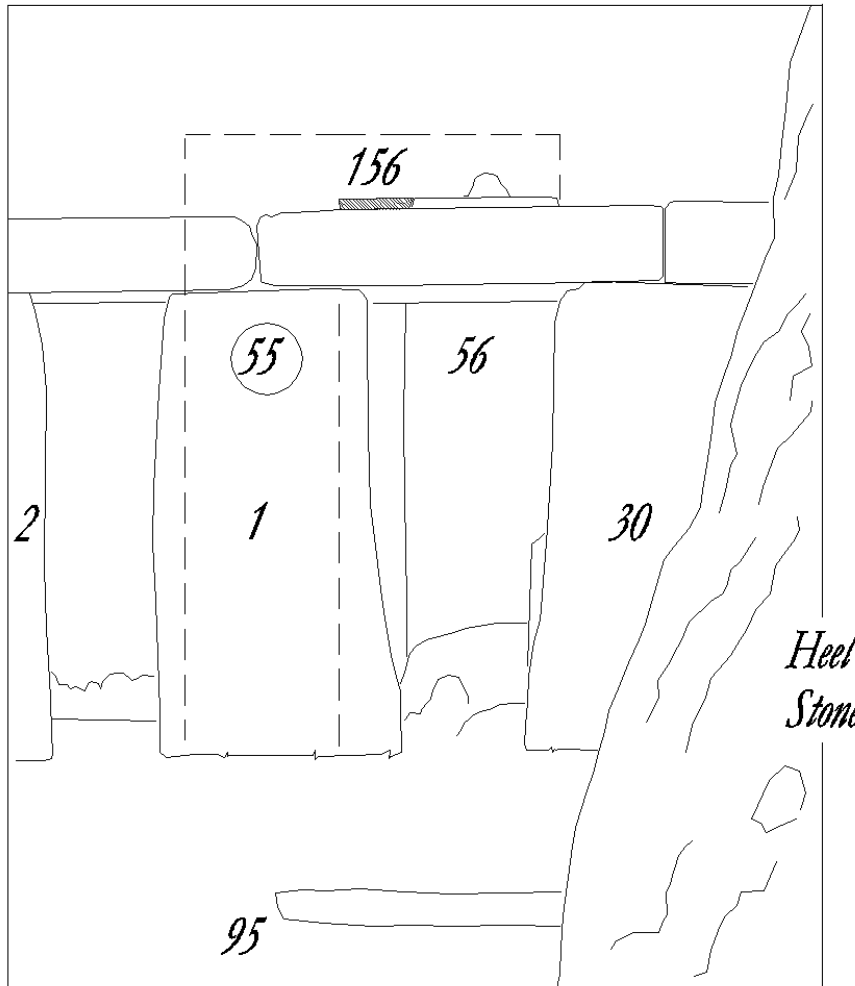


FIG. 176. Lines of sight through the monument looking northeast.



Two windows by obscuration, one above the other on one alignment to the south west, viewing from the Heel Stone.



Obscuration effect a product of the *primary* design principles of Stonehenge:

1. Two nested circles.
2. Two nested arcs.
3. Sarsen and bluestone.
4. Quadrangular worked straight edges.
5. Level lintels.
6. Concentric.
7. Tiered in rank order.
8. Axial (arcs' axes; 'large' gap between stones 1 & 30; NE gap; Avenue; Heel Stone).
9. Arranged in positions and in dimensions to create illusion of solid mass of stone when approaching from NE.
10. Variable viewing height by sloping ground (2 my (1.7 metres) lower at Heel from centre of monument) and Heel Stone viewing ditch.
11. Heel Stone has parallel vertical sides to above eye height.
12. Right and left hand viewing from straight sides of Heel Stone.
13. Lintel 156 of the grand trilithon has its NE face tipped forward at 90° to a Heel Stone observer.

If your theory of
Stonehenge does not
explain this obscuration
effect, then you have not
explained its primary
design principles.

Testable measurements of the two axial windows (North 1996: 471-473; ground plan and dimensions from Cleal 1995)

- Angle from right hand side of Heel to centre of lower gap = 229.5°
- Angle from left hand side of Heel to centre of upper gap = 231°
- Angle subtended from Heel by height of upper window = 8°
- Angle subtended from Heel by width of upper window = 56°

Alignments of two central axial windows from Heel stone for minor standstill of 2490/2489BC:

Architecture

Astronomy

Angle right hand side of Heel = 229.5

Winter solst. sunset at altit. $0.5^{\circ} = 229.5$

S. min. ms. lunistice at altit. $4^{\circ} 19'$

Angle left hand side of Heel = 231

Average = 231.2

Lowest = 230.7

Greatest = 232.2











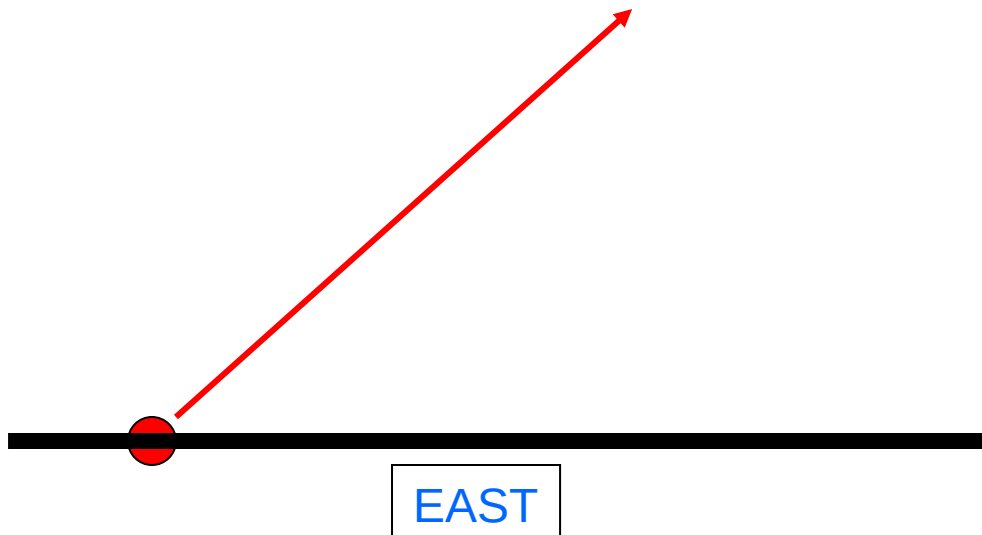
- Walking slowly uphill from the Heel Stone at winter solstice sunset, the rising eye exactly counter-balances the movement of the sinking Sun.
- The design and placement of the monument is an artifice to manufacture the illusion of connecting with the cosmos on an intimate level.





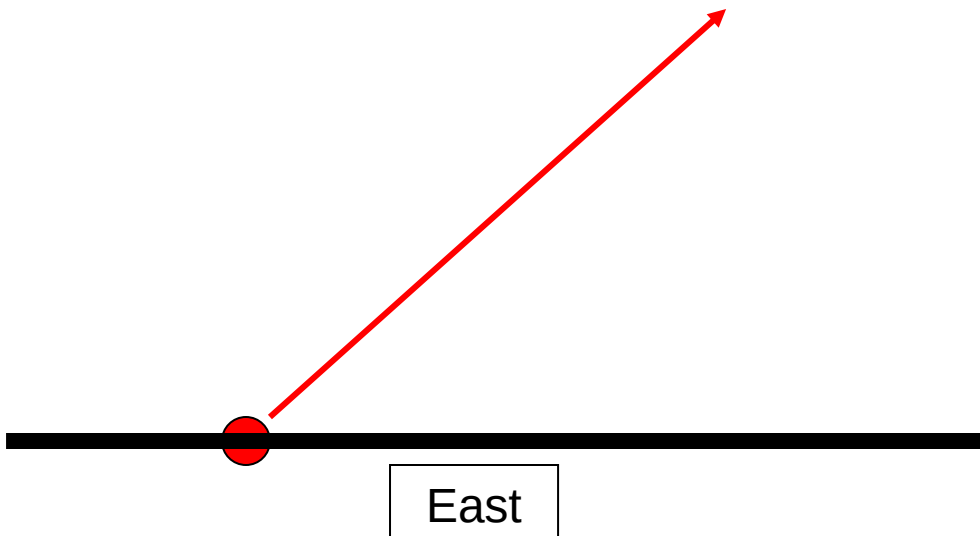


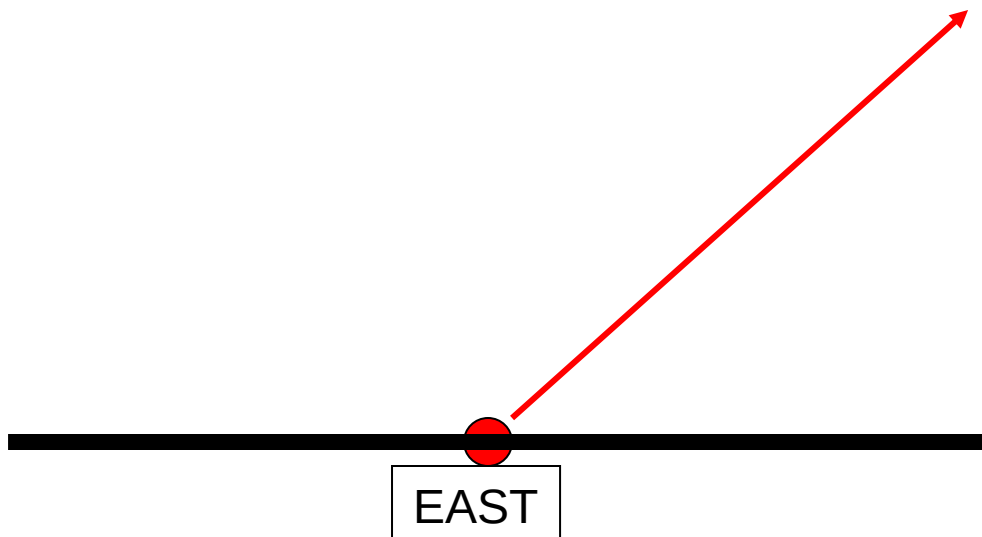




- At dawn on summer solstice, 21st June, the Sun rises in the North East.
- This the furthest swing to the North that the Sun ever makes.
- For three days before and after the solstice, the human eye cannot detect any movement in the Sun's horizon rising position.
- Lakota Sioux: "The Sun is staying in its summer house."

- After three days, and at first very slowly, the Sun's horizon rising position moves slowly south.



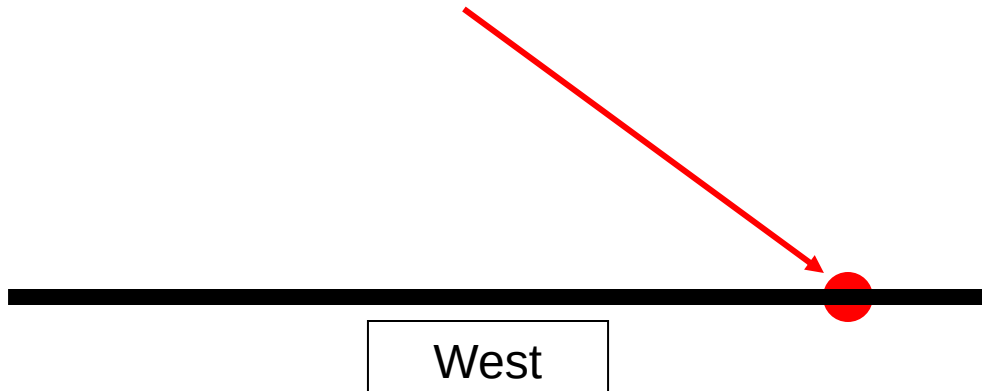


- By the Autumn equinox, 23rd September, the Sun is rising in the East.
- Daily horizon positions, like a pendulum in the middle of its swing, are now changing at their fastest rate.

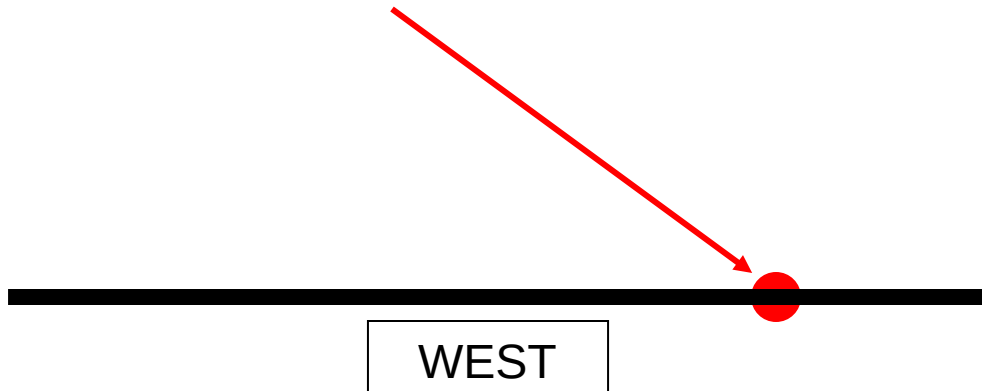


- By the winter solstice, 21st December, the Sun rises on its furthest southern point on the eastern horizon.
- For three days before and after the winter solstice, the human eye cannot detect any change in the Sun's horizon rising position.
- Lakota Sioux: "The Sun is staying in its winter house."
- The Sun never reaches further south than this point.
- On the fourth day after the winter solstice (25th December), the Sun starts its horizon journey back to the North.
- The completion of the full horizon journey will be one year.

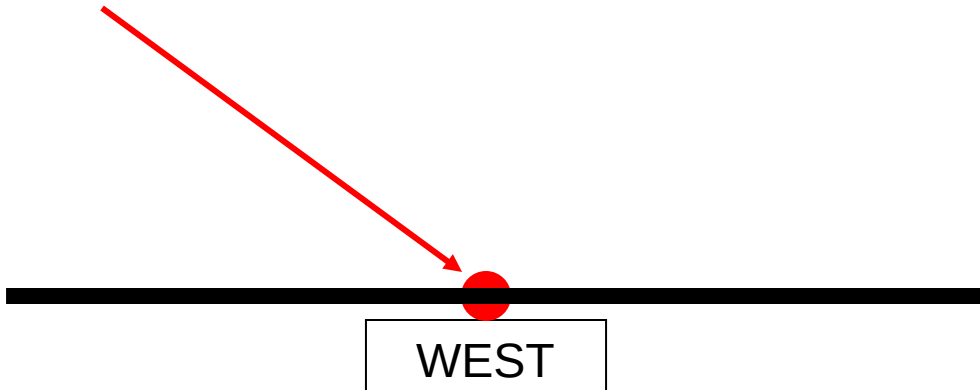
- Now looking to the West, to settings, the Sun's horizon movements mirror those on the eastern horizon with its risings.
- At summer solstice, 21st June, the Sun sets at the furthest point it reaches on the northern horizon.
- Again for three days either side of summer solstice, the horizon setting position does not seem to move.



- Four days after summer solstice, and very slowly, each evening the Sun sets at a more southern horizon position.

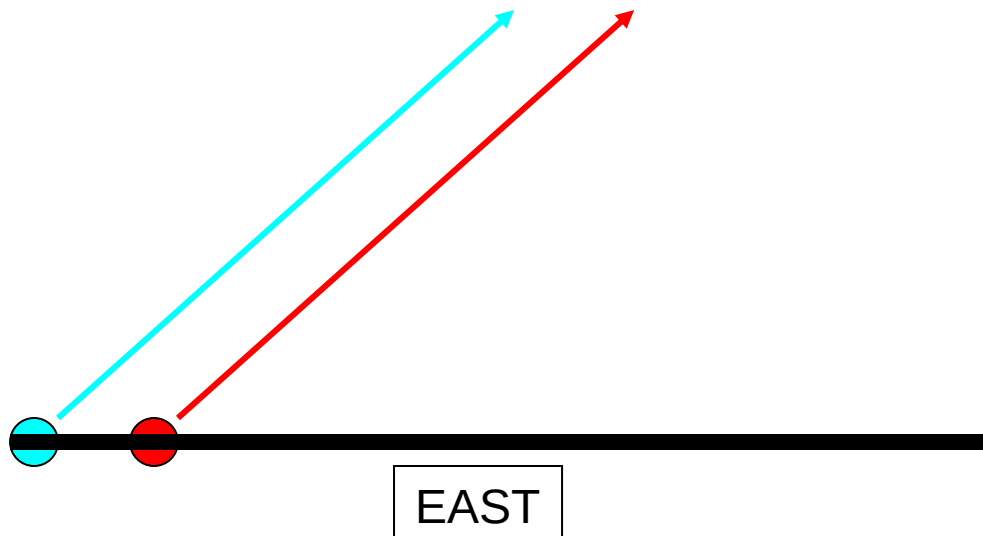


- By the Autumn equinox, on 23rd September, the Sun is setting in the West.
- Now the horizon movements of the Sun are at their most rapid.

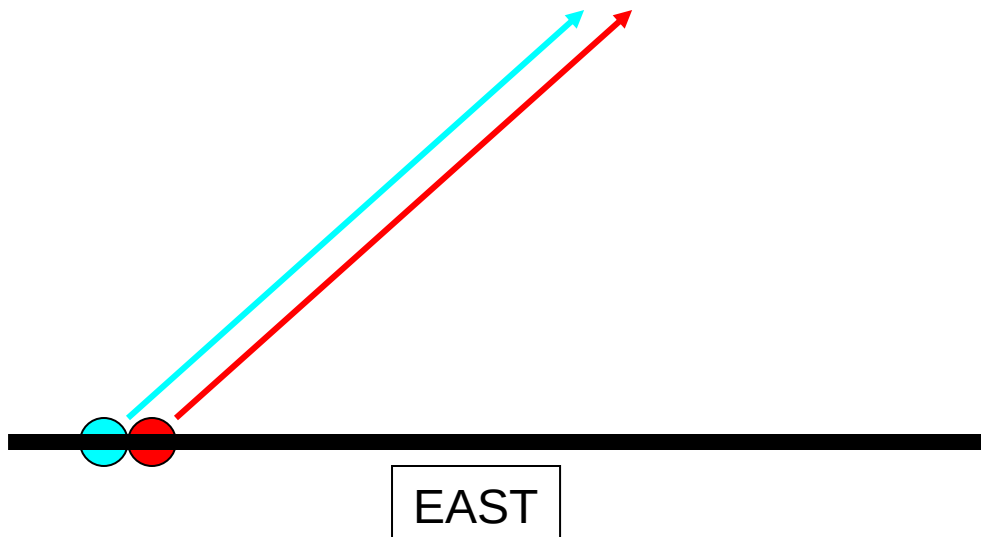


- By winter solstice, the Sun is setting the furthest South on the horizon that it ever reaches.
- Again for a week the Sun does not seem to change its horizon position.
- And again it takes one year for the Sun to complete its horizon movements.

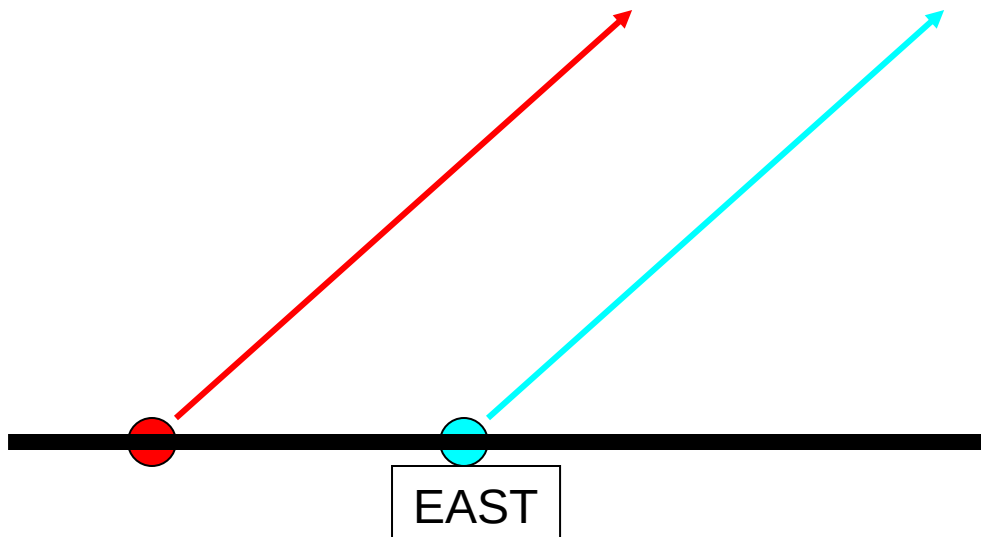




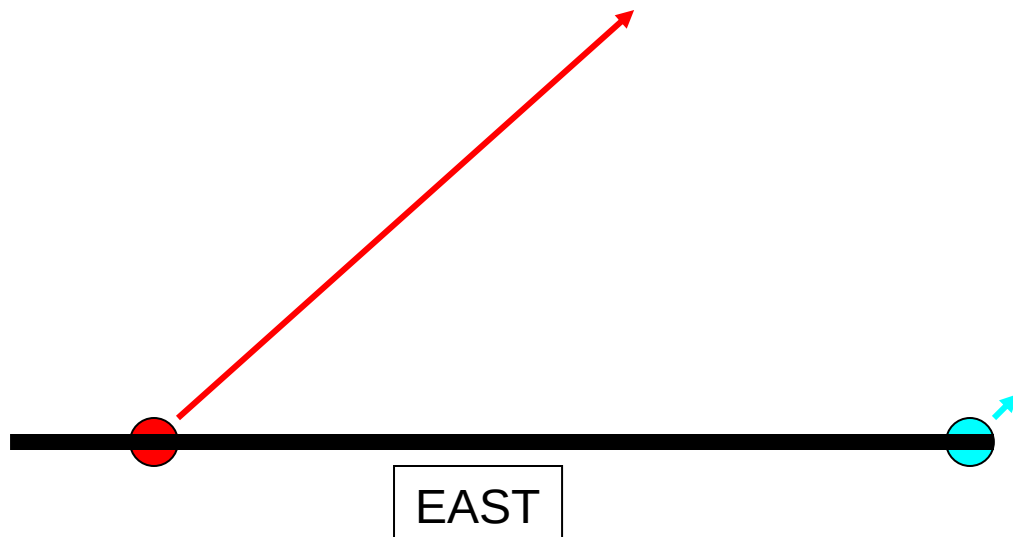
- Once every nineteen years, and for a year, the Moon reaches its furthest extremes on the horizon.
- The major standstill of the Moon is, at Stonehenge latitudes, about 10° greater than the Sun's solstice horizon extreme.
- The Sun never reaches the extreme horizon position of the Moon when at its major standstill.
- This is called the northern major standstill moonrise.



- However, the Moon's horizon movements at its extreme, whether at a standstill or not, do not remain stationary for about a week as do the Sun's.
- The next *night* the Moon has moved significantly south when it rises on the eastern horizon.

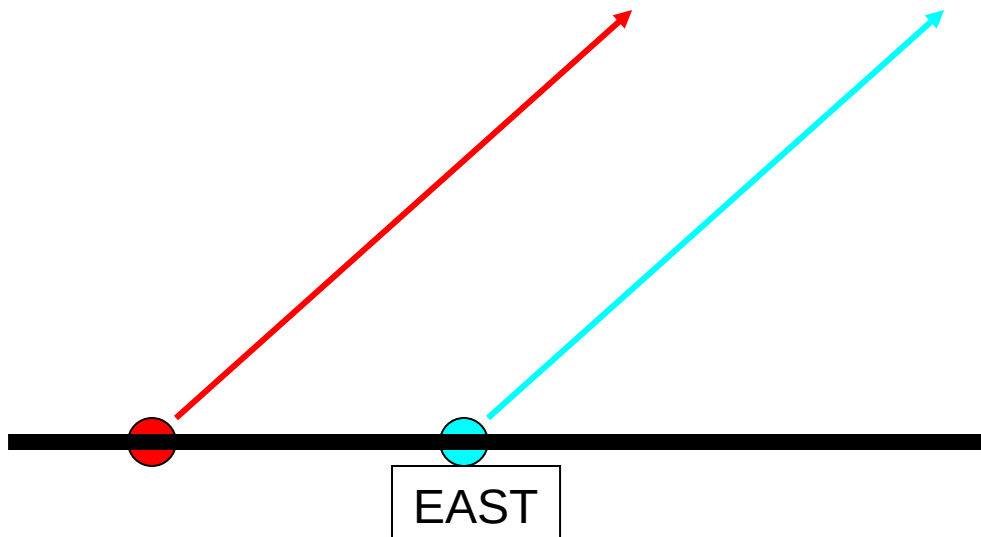


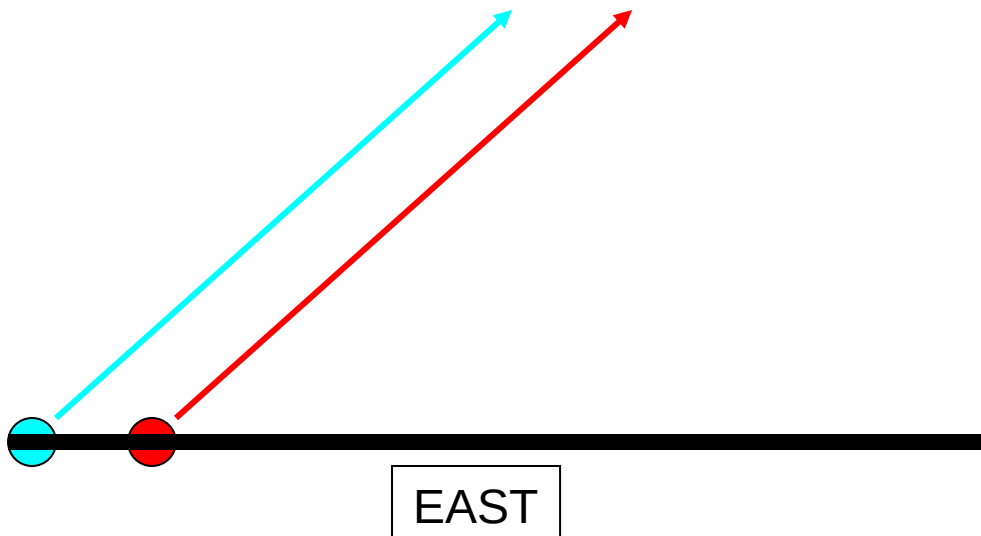
- In seven days the Moon is rising in the East, while the Sun at its solstice has hardly changed its position.
- While on average the Moon's daily horizon rise and set positions alter by about 13° , it is at this point that the Moon's horizon movements are greatest.



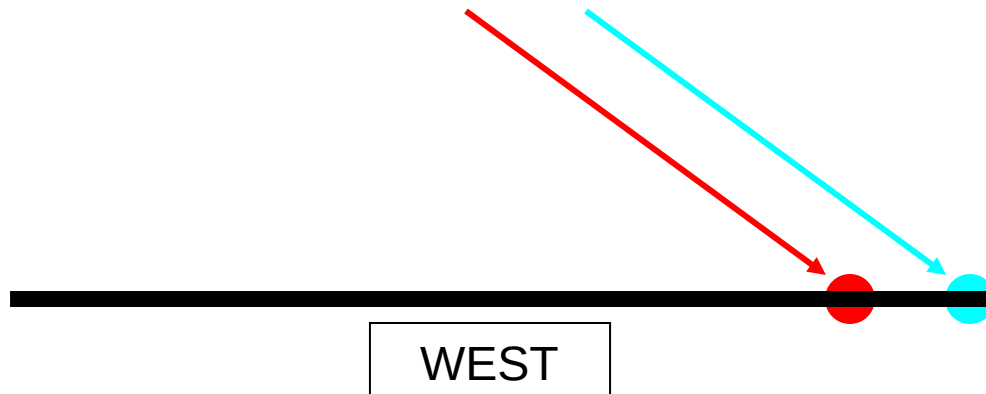
- In 13-14 days, during its major standstill, the Moon has swung to the furthest South on the horizon that it ever reaches.
- This is called the southern major standstill moonrise.
- Still the Sun has hardly moved from its solstice position.
- The Sun never reaches the southern horizon extreme reached by the Moon at its major standstill.

- A further 6 or 7 days later, the Moon is moving back to its northern extreme, and is rising in the East.



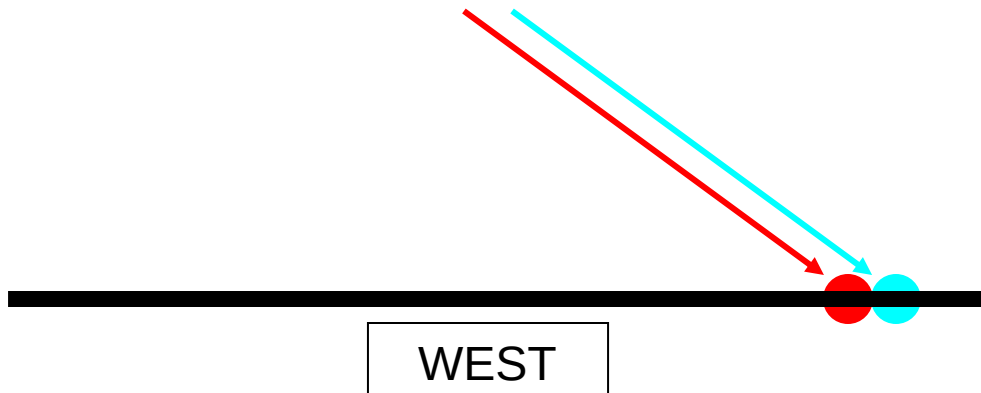


- After 27.3 days, the sidereal month, the Moon has returned to its northern extreme. (It has completed its orbit around the Earth.)
- This is called the northern major standstill moonrise.
- The Moon's horizon movements therefore span its full range in 27.3 days, while the Sun takes 365.25 days to do the same.
- In the space of one year, the Moon makes 13 return horizon journeys, to the Sun's one.
- If you wish to observe or fix an alignment upon the major standstill, whether northern or southern, this requires a time-lapse observation exercise of the Moon's position every 27.3 days.

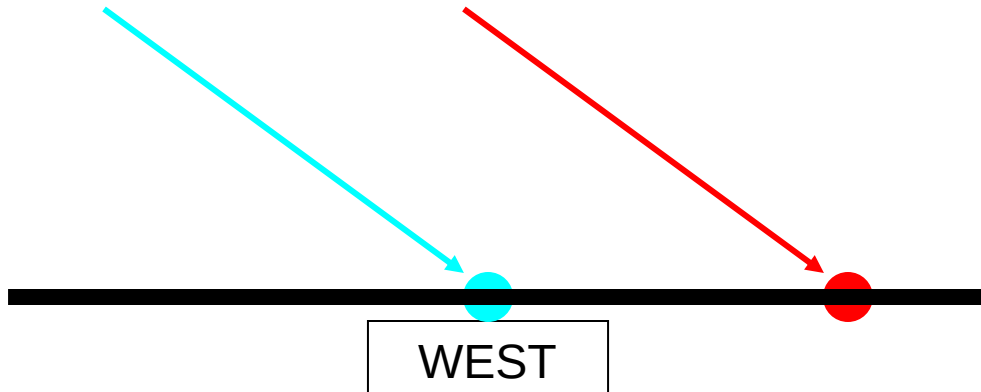


- On the western horizon the same horizon movements are true for settings.
- Here at summer solstice, and when the Moon is at its major standstill at Stonehenge latitudes, the Moon sets 10° further North than the Sun ever reaches.
- This is called the northern major standstill moonset.

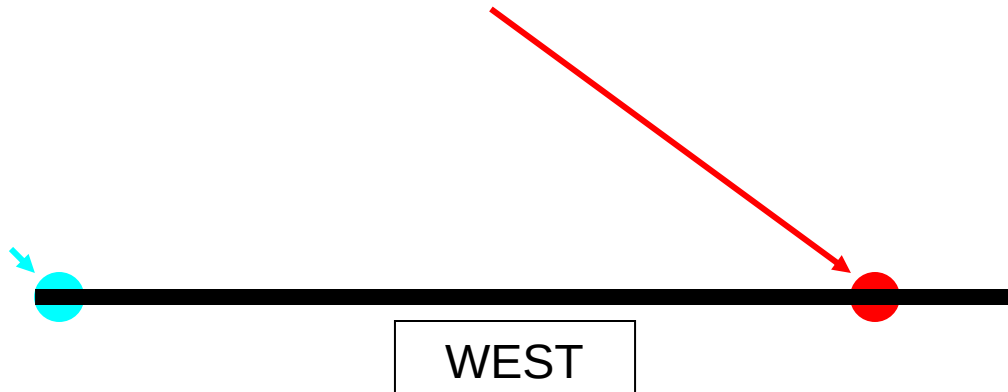
- Just as for risings, the next night the setting Moon has already significantly shifted its horizon position. It sets south of its northern extreme, while the summer Sun has hardly changed its setting position.



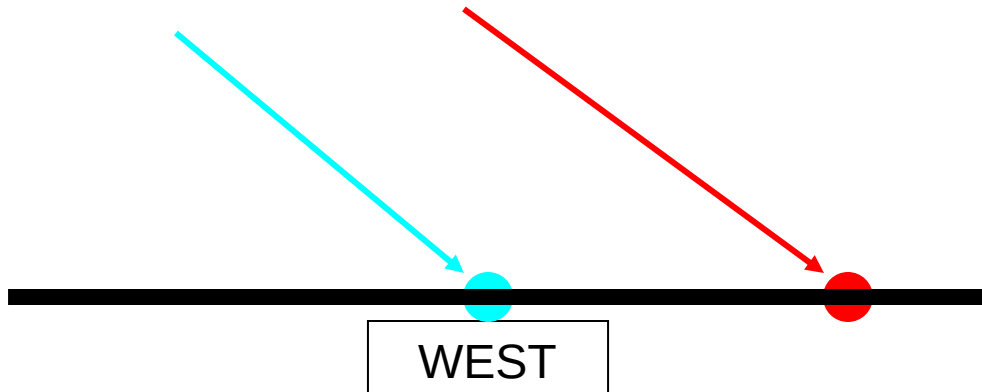
- About a week after leaving its northern extreme position, the Moon is setting in the West.



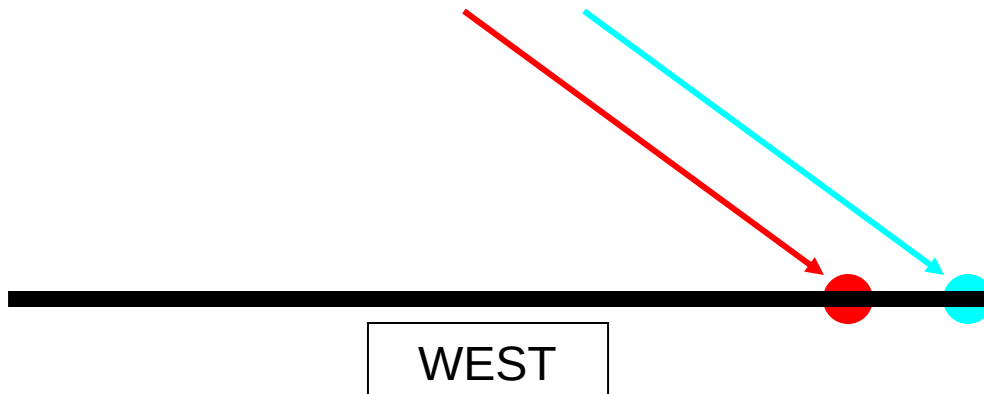
- Between 13 and 14 days later the Moon is setting at its southern extreme.
- This is called the southern major standstill moonset.

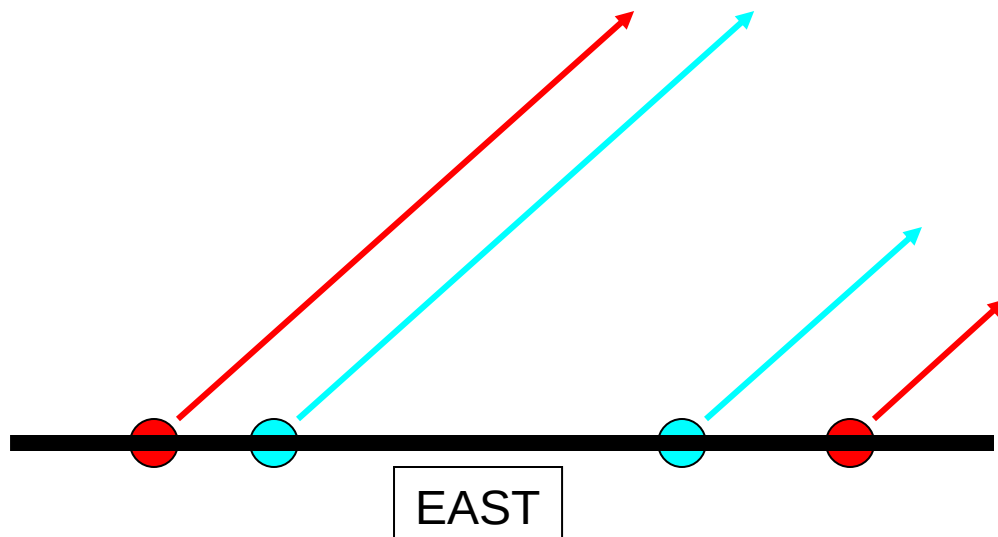


- About 21 days later the Moon is setting in the West.

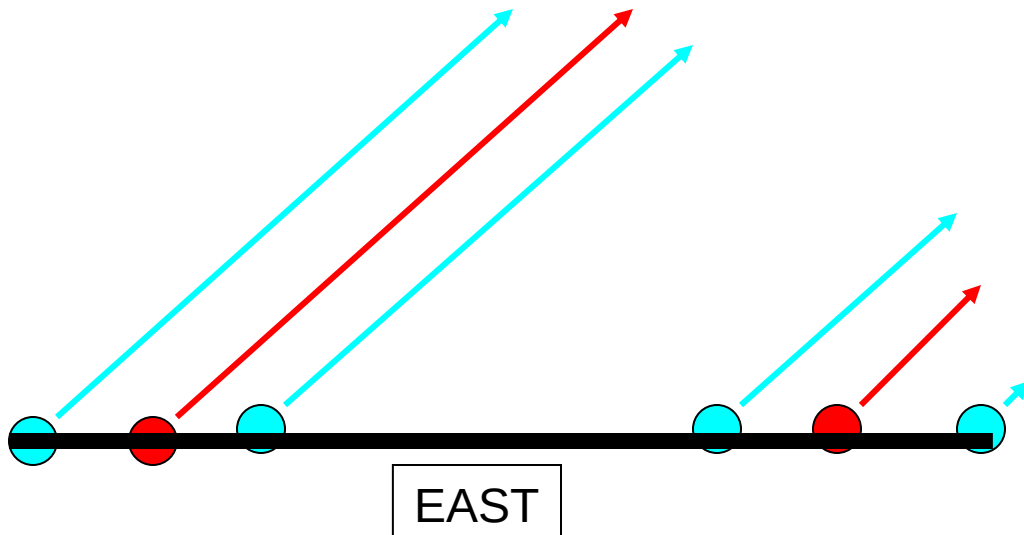
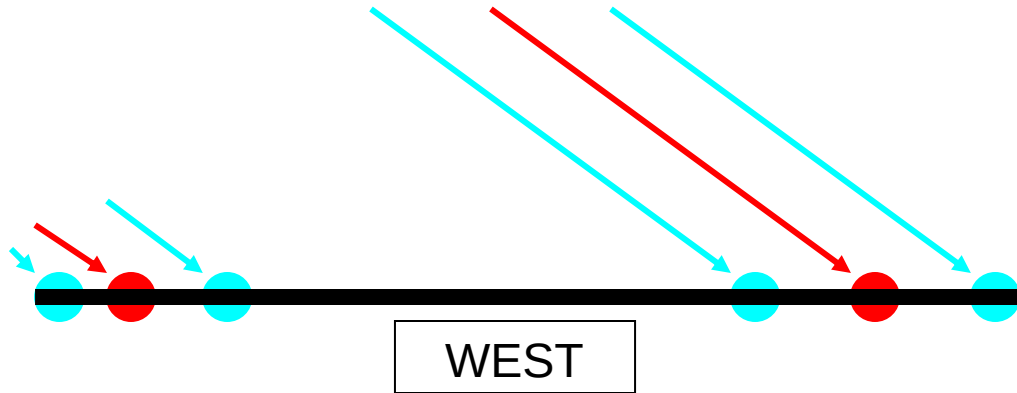


- After 27.3 days the Moon is back to its northern extreme setting position.

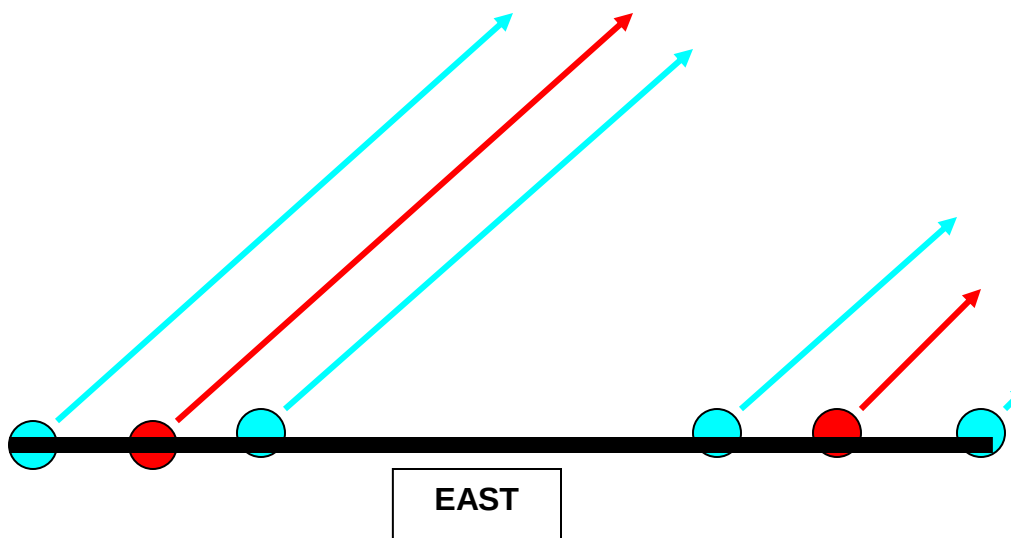
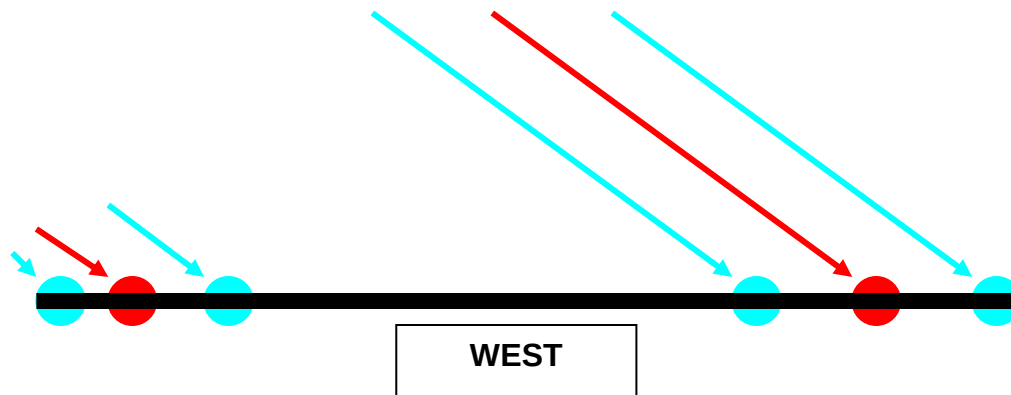


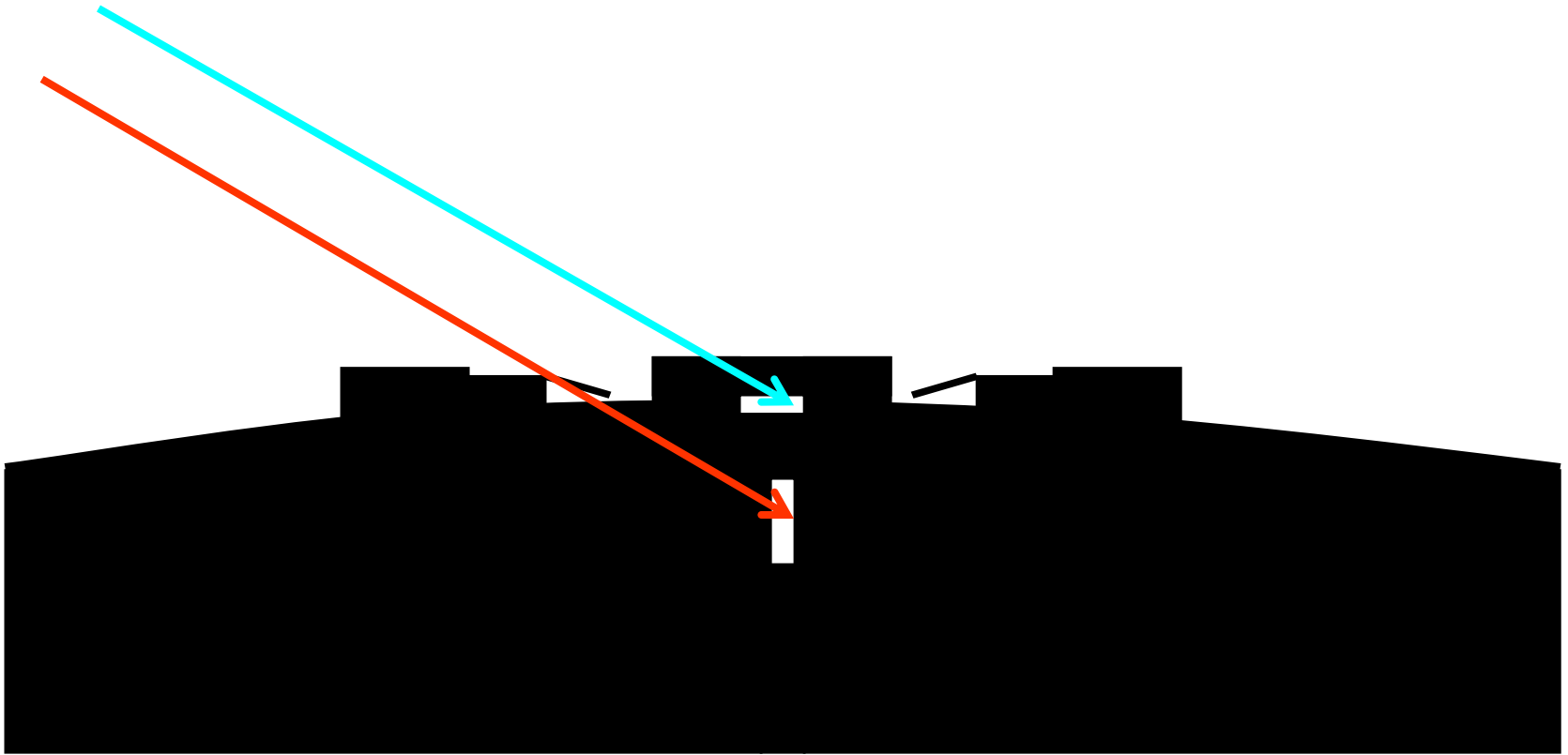


- After about one year of the Moon swinging between these major extremes, the Moon's horizon range begins to gradually contract.
- After about nine years the Moon's horizon range reaches another standstill region, but now at Stonehenge latitudes, about 10° within the Sun's extreme solstice position.
- These are called the northern and southern minor standstill moonrises.
- The same will be true for settings in the West.
- Notice that unlike the major standstills, the minor standstill horizon positions of the Moon are reached by the Sun.
- Notice also that, since these are the minimum limits of the Moon's range, it occupies these horizon positions throughout its 18.61 year draconic cycle whenever the Moon's horizon movements travel between their limits.

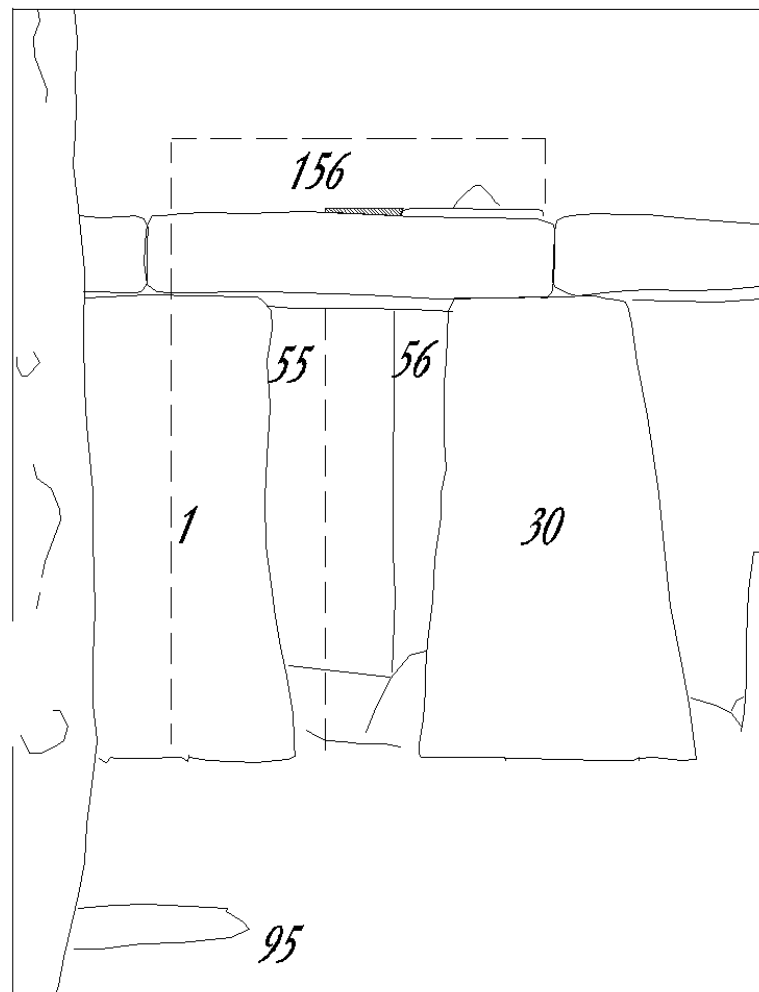
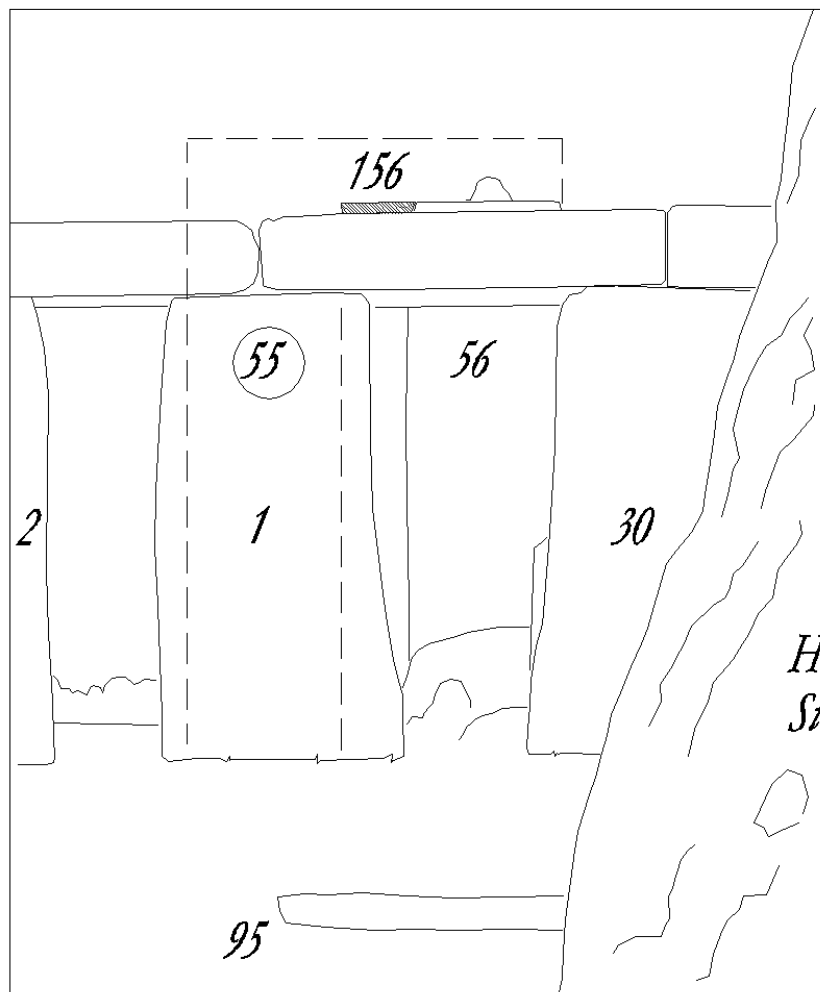


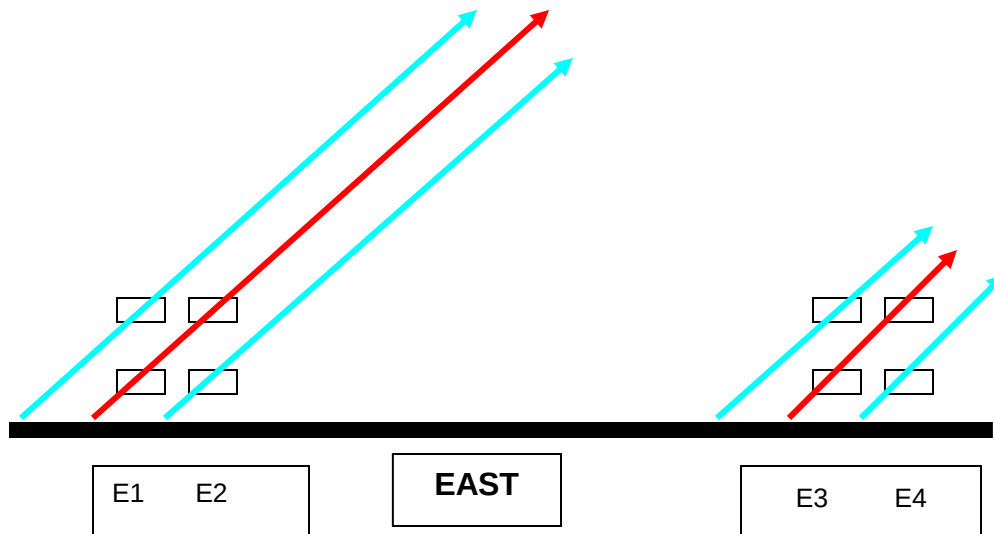
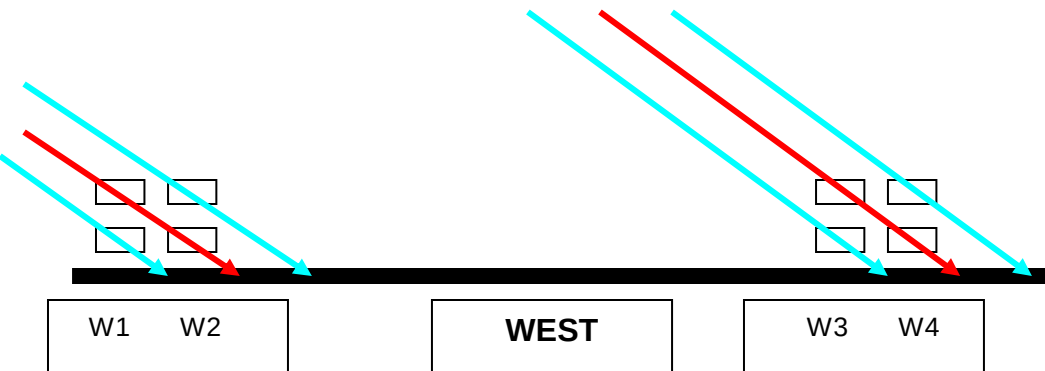
- The Sun therefore has four stationary solstice horizon positions, two for settings in the West and two for risings in the East.
- The Moon, however, has eight standstill positions, four in the West and four in the East.



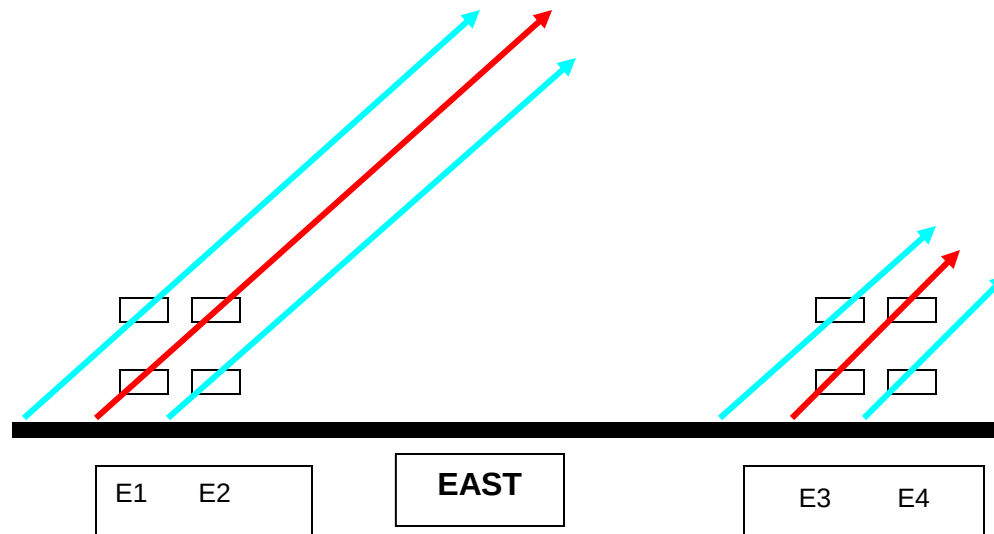
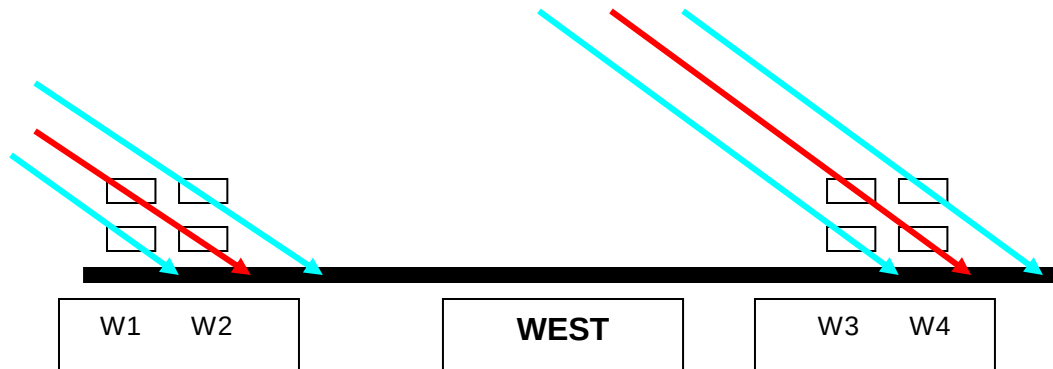


- Once every year, at winter solstice at Stonehenge, when standing on the right hand side of the Heel Stone, the Sun can be seen to apparently set in the centre of the monument.
- Once every nineteen years and for thirteen lunations over one year, when standing on the left hand side of the Heel Stone, the Moon can be seen to set in the upper window at its southern minor standstill moonset.





- Archaeoastronomers have so far considered ancient monument alignments as *single* alignments.
- Interpretation has therefore focussed on why a particular solar or lunar alignment may have been chosen, but not on the emergent properties of a pairing of the Sun and the Moon.
- In particular, why did the builders of sarsen Stonehenge choose the pairing W2, but not the other seven possible pairings?
- If we study the detailed properties of all eight pairings, then we can isolate what properties, if any, are peculiar to W2.



Superior Moon but rejected:

W4 – summer

E3 – winter sunrise

E1 – summer sunrise

Inferior Moon and rejected:

E2 – summer sunrise

E4 – winter sunrise

W3 – summer sunset

W1 – winter sunset

Chosen pairing:

W2 – superior Moon at winter sunset



- Professor John North calculates that the height of the upper window, seen from the Heel Stone, subtends an angle of 8 minutes of arc (There are 60 minutes in one degree. The width of the upper window is about 1° .)
- The Moon, when viewed with the naked eye, subtends an angle of 30 minutes of arc (one-half of one degree).
- Therefore the upper window at Stonehenge was never designed to frame the disc of the full Moon.
- Since it was not the greatest luminosity of the Moon which was being sought, what other lunar properties are there?

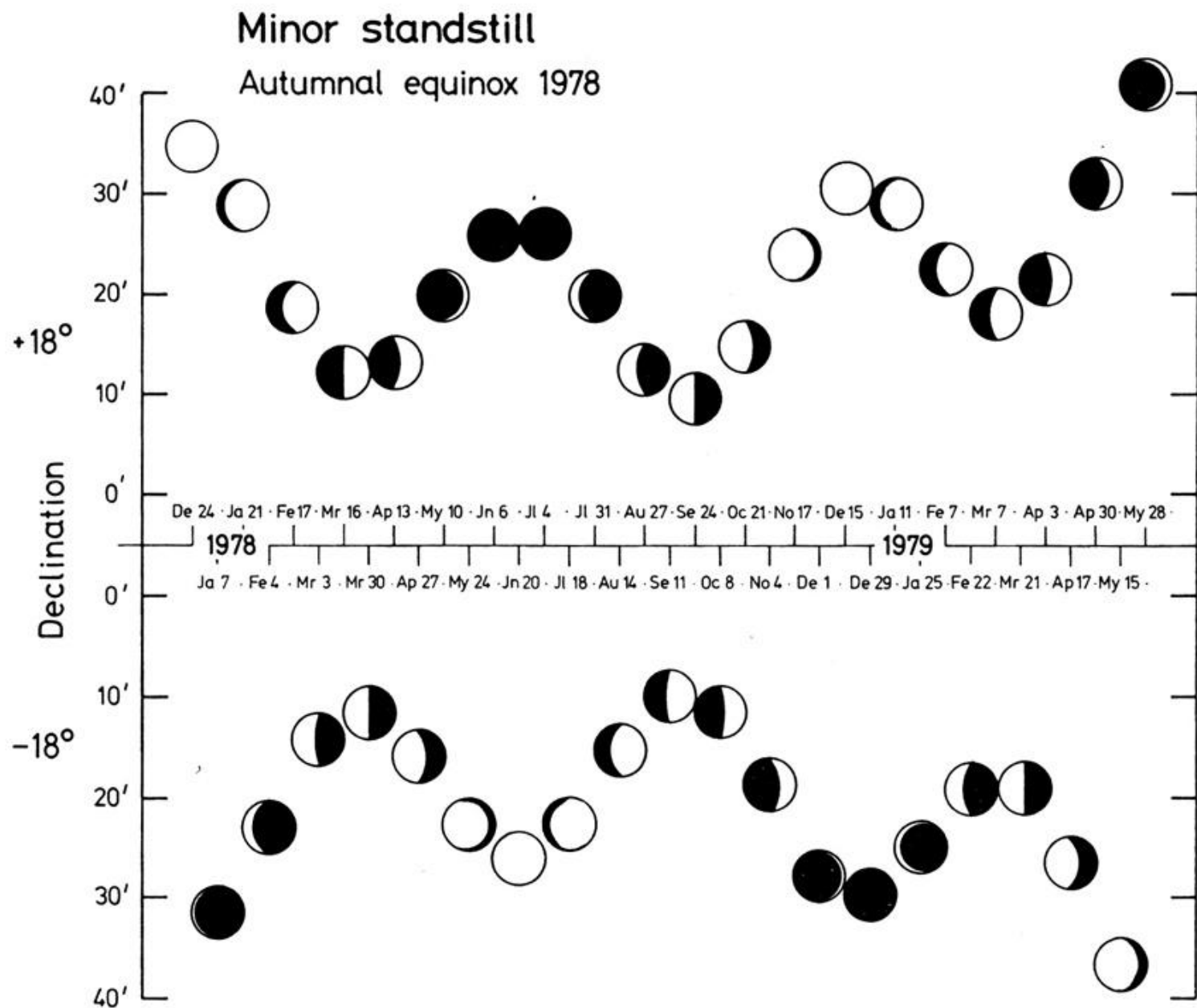
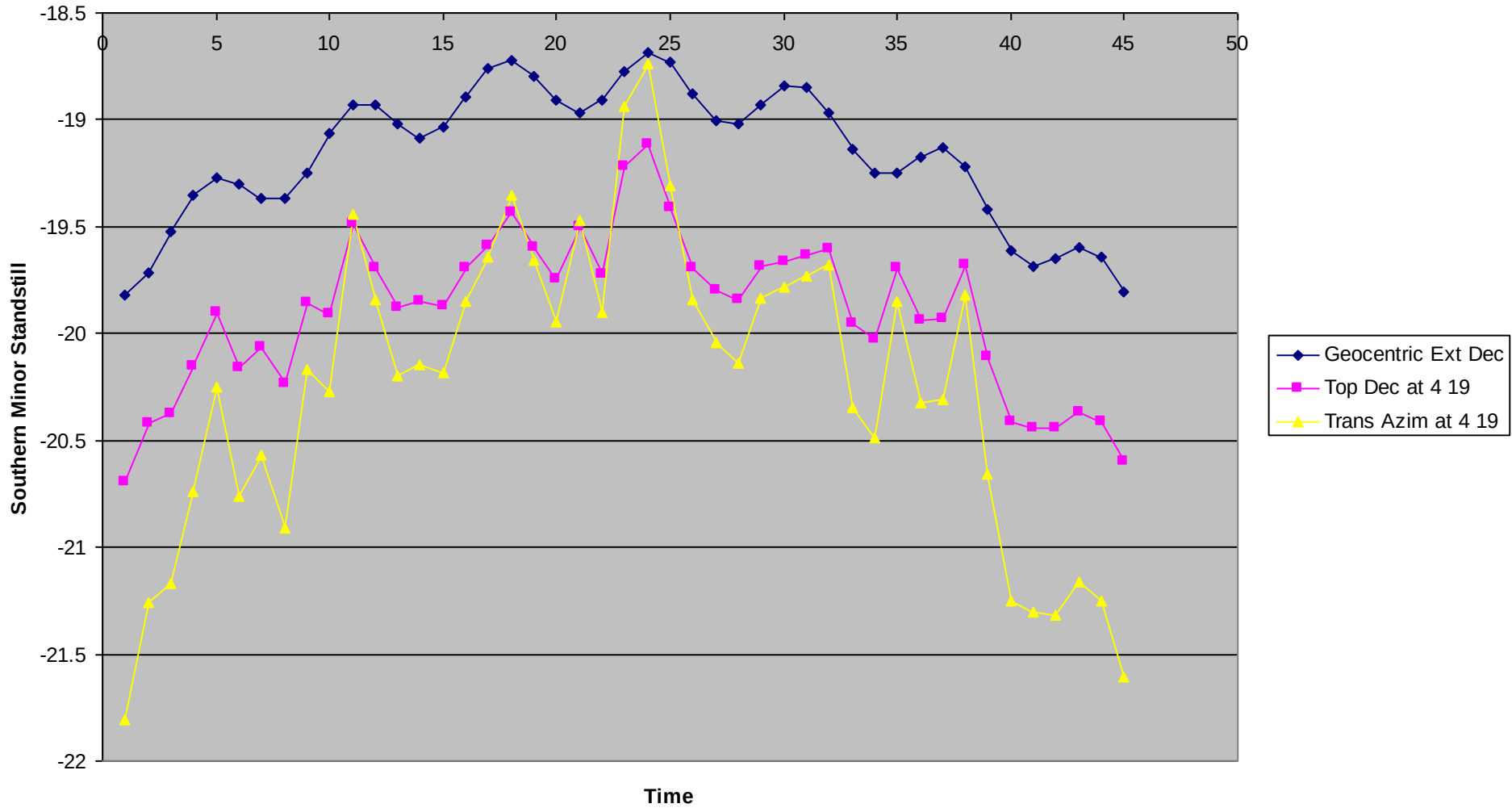


FIG. 5. Monthly extremes of declination during the minor standstill of 1978.

3 Angular Measures of SMin Standstill 2490BC



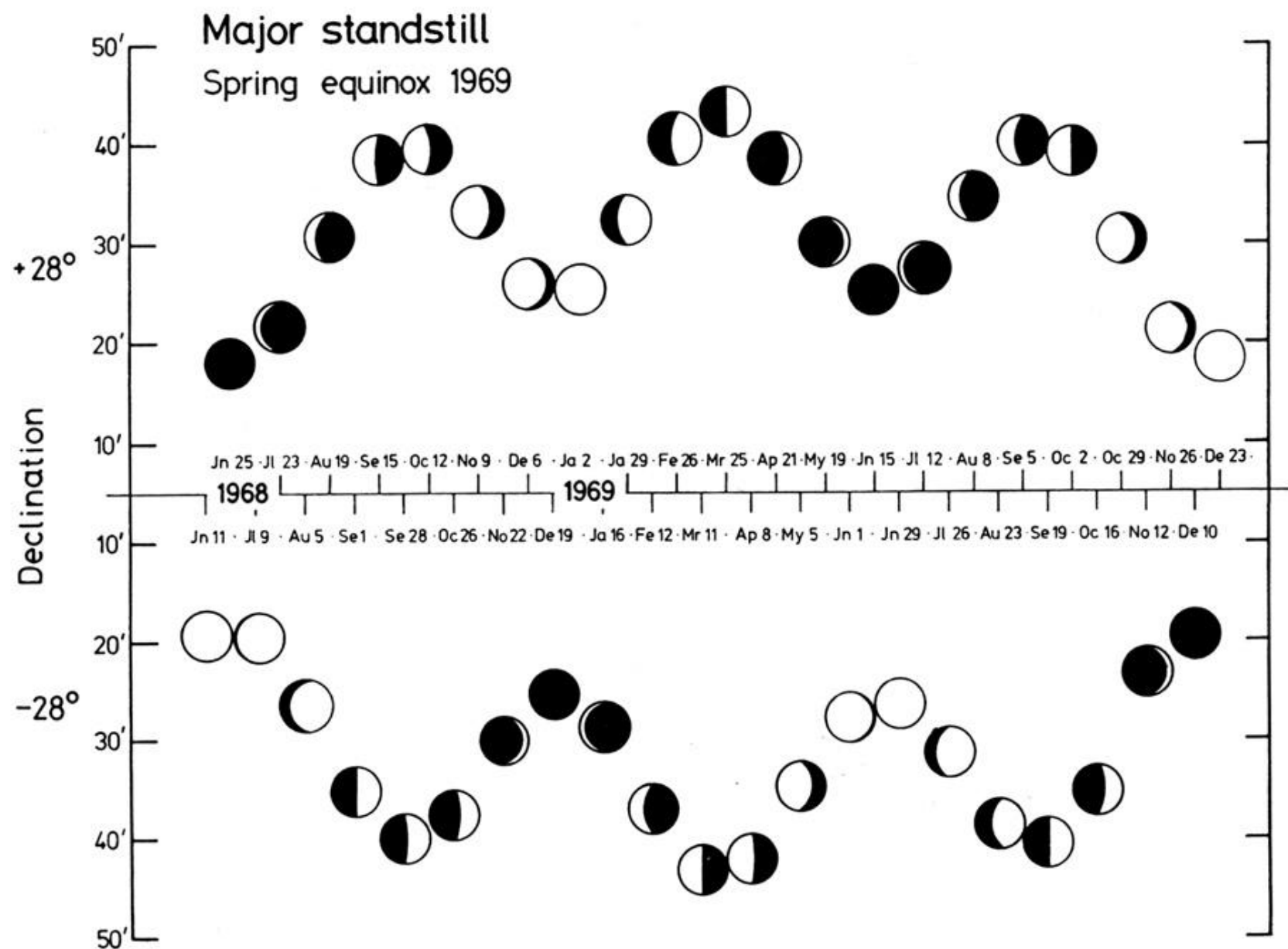


FIG. 4. Monthly extremes of declination during the major standstill of 1969.

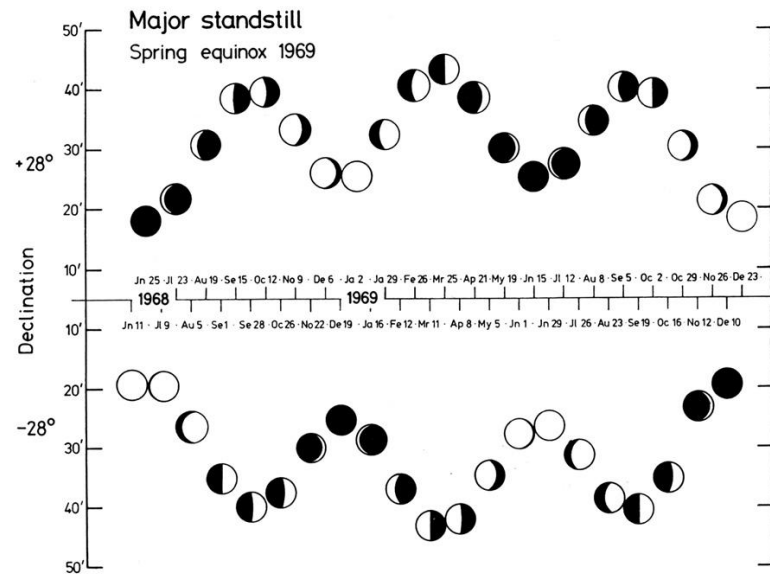


FIG. 4. Monthly extremes of declination during the major standstill of 1969.

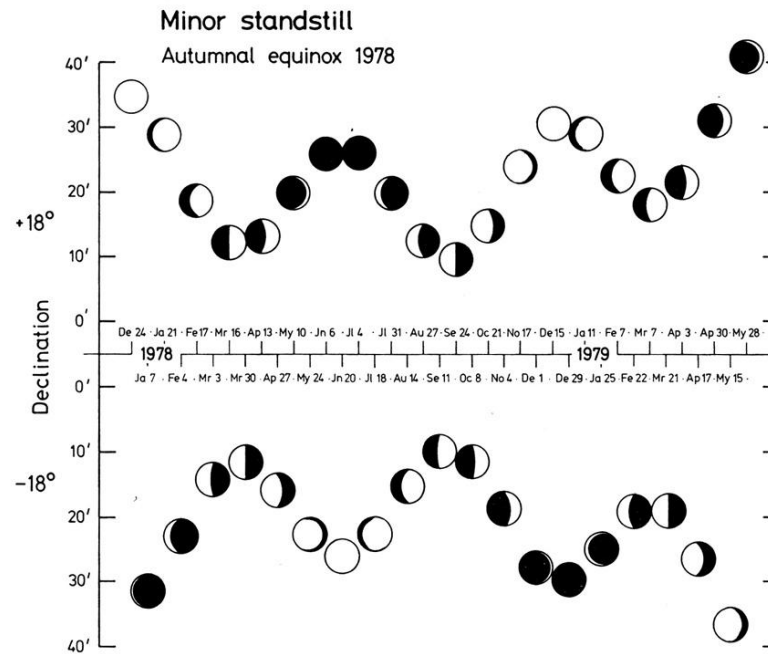
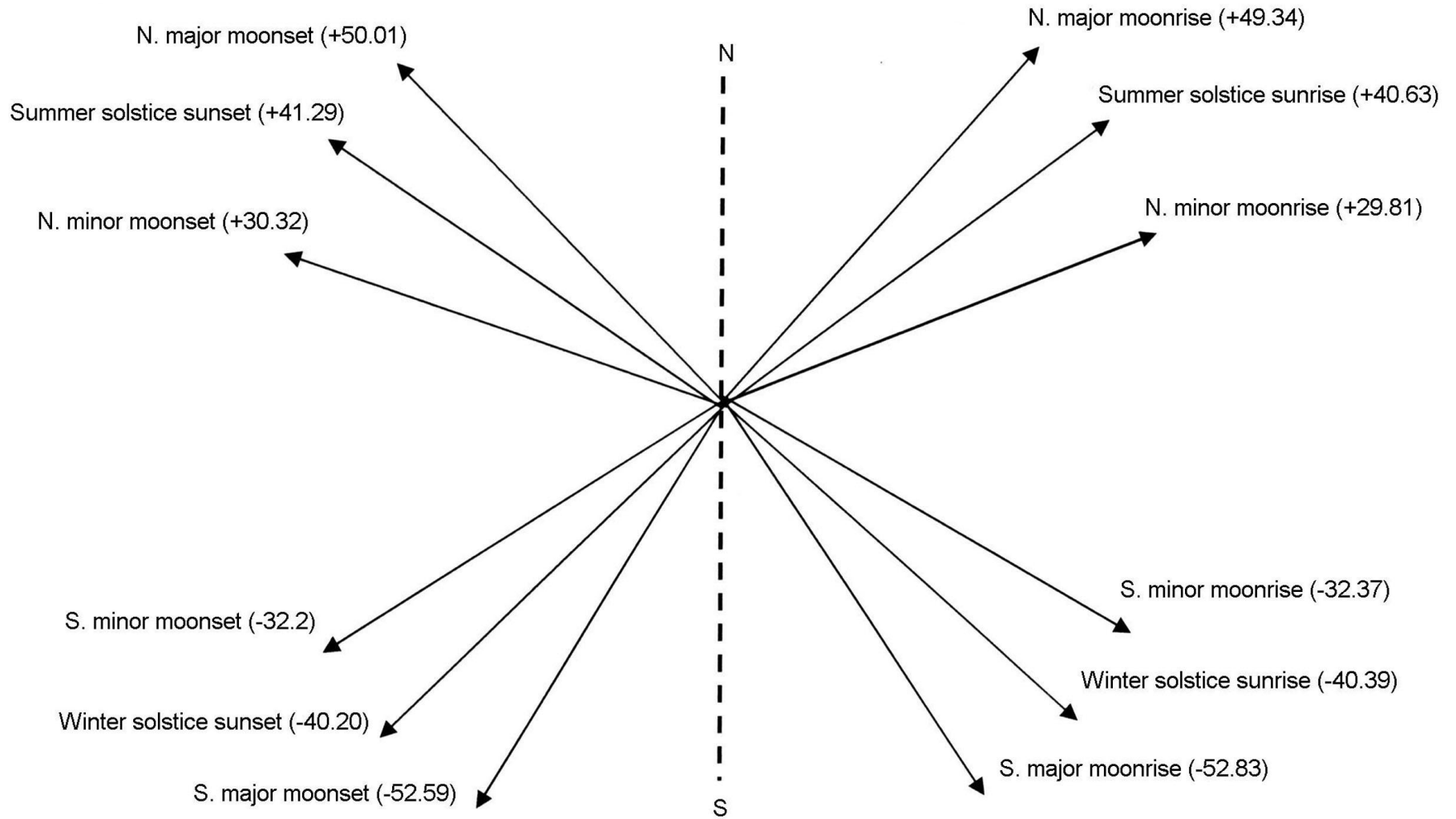


FIG. 5. Monthly extremes of declination during the minor standstill of 1978.



What can be seen in the upper window?

- Cannot see the sinusoidal alternation of the geocentric lunar standstill extremes.
- But also, since the height of the upper window from the Heel Stone subtends an angle of only 8' of arc, then cannot frame the disc of the full moon at 30' of arc.
- Therefore winter solstice sunset not intended to be bracketed with full moon at Stonehenge.













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Sarsen Stonehenge lunar-solar alignment properties:

1. Moon superior to sun
 2. Dark moon
 3. Dark moon at winter solstice:
 - a. amplification
 - b. conflation
 - b. estrangement
- (annualised moon)
4. Axial centre of cosmos
 5. Stills the descent of the sun
 6. Left vs. right viewing from Heel Stone
 7. Abstracted, reversed and attenuated cycle of lunar phases
 8. Redundant vs. cryptic signals

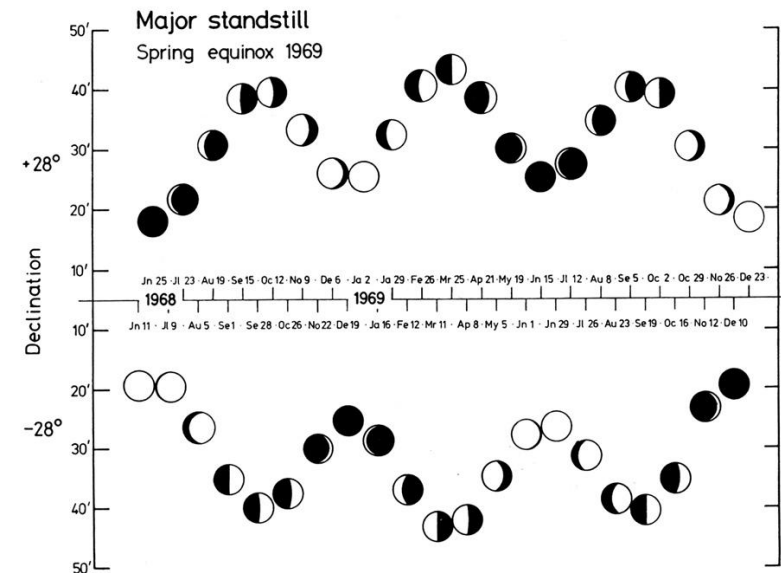


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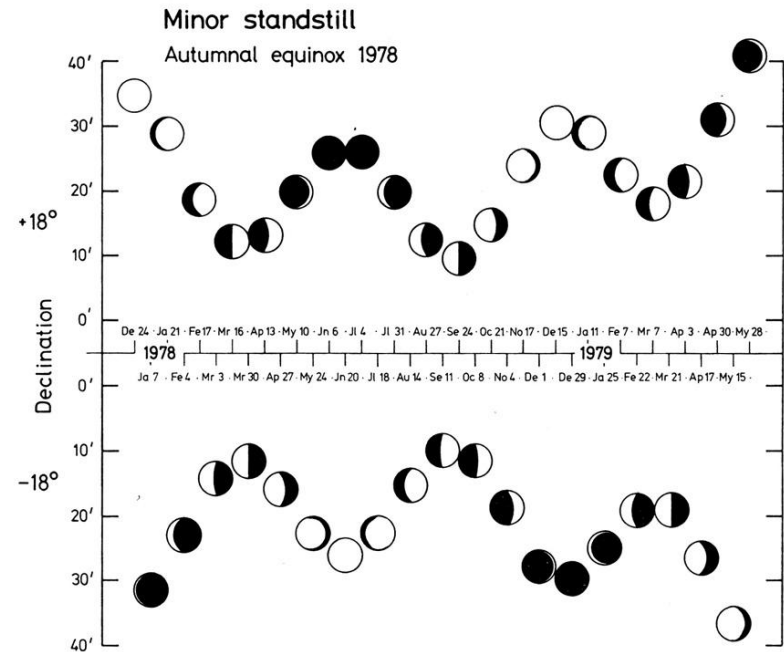


FIG. 5. Monthly extremes of declination during the minor standstill of 1978.

Neolithic counter-revolution: sex-strike strategy contained and appropriated by cattle-owning men.

	Neolithic Revolution	Palaeolithic Revolution	Neolithic counter-revolution
Invention of “gods”	Late (about 10-6k years ago)	Early (about 120k years ago)	Early (in NW Europe 6k-4k years ago)
Syntax of cosmology	Simple	Elaborated	Complex and alienated
First cosmic “god”	Sun	Moon	Sun appropriates Moon
Secular referents of “gods”	Elite males	Ancestral females	Elite male masquerading as or controlling bleeding ‘female’
Political function of religion	Calendars and elite male rule	Preserve sibling solidarity	Conceal/embed emergent male rule within ancient lunar cosmology

Gobekli Tepe

- Gobekli Tepe, built by hunters eleven thousand years ago in Anatolia long before the Neolithic 'revolution'. The earliest of these monuments are the most impressive with later examples declining in scale and sophistication, indicating that late Palaeolithic hunters rather than early Neolithic 'farmers' were more sophisticated than the traditional model allows
- See Charles Mann June 2011 National Geographic.



‘...animals [at another site a thousand years later] – were important symbols when humans began domesticating sheep, goats and other beasts.’ Charles Mann 2011.

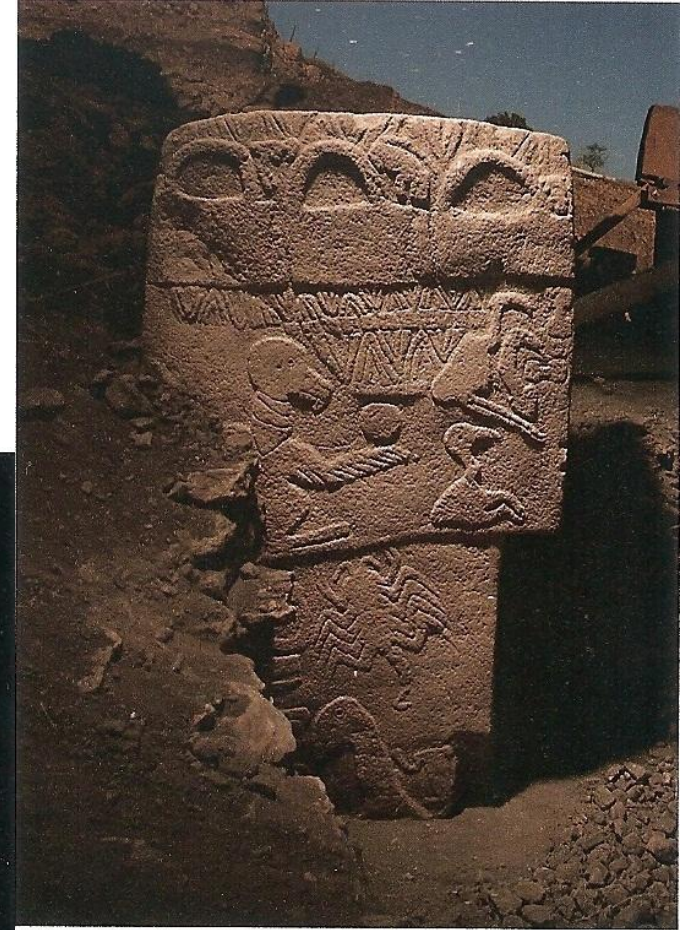
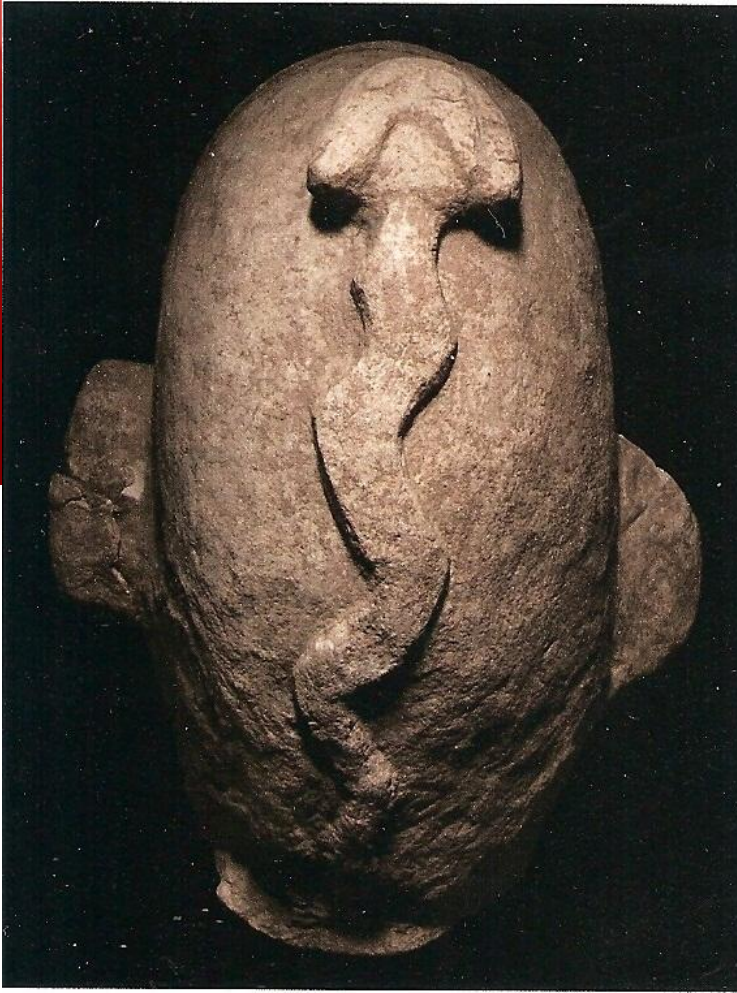


But also at Gobekli Tepe.....



Sheela-na-gig

Dragon head



Vultures, scorpions and
other beasts of the wild....

A good theory?

- Have explained '14' design properties which generate another '8' lunar-solar properties by main axial alignment.
- Does not explain '11' 'secondary' design properties.

Stonehenge primary and secondary design properties

1. Two nested circles.
2. Two nested arcs.
3. Sarsen and bluestone.
4. Quadrangular worked straight edges.
5. Level lintels.
6. Concentric.
7. Tiered in rank order.
8. Axial (arcs' axes; 'large' gap between stones 1 & 30; NE gap; Avenue; Heel Stone).
9. Variable viewing height by sloping ground and Heel Stone viewing ditch.
10. Obscuration focussed from Heel Stone to south west.
11. Heel Stone has parallel vertical sides to above eye height.
12. Two windows, doubled one above the other on one alignment, to south west.
13. Right and left hand viewing from straight sides of Heel Stone.
14. Lintel 156 of the grand trilithon has its NE face tipped forward to provide at 90° to a Heel Stone observer.
1. Stone 11 half size.
2. Southern entrance.
3. Pitched face of lintel 154.
4. Station stones rectangle.
5. Ditches around station stones 91 & 93.
6. Altar stone made of 'green' stone.
7. Some stones have smooth internal or external faces.
8. Stone 16 rendered as oak bark.
9. Aubrey holes for cremations and other deposits.
10. Various underground locations for variety of deposits (phallus, mace, skeleton, human bones, animal bones)
11. Axe and dagger 'art' motifs.



From this....

...to this...



Bornéo,
Sarawak,
ex-coupeur
de têtes
Dayak

Examples of some solar and lunar *double* alignments found in British archaeoastronomy:

SITE	SOLAR ALIGNMENT	LUNAR ALIGNMENT	OTHER POSS. RELATED PROPERTIES	REFERENCE
Scottish recumbents ($-19^{\circ} \leq$) (n=64)	Winter sunset	Southern major and southern minor moonsets	Quartz scatters	Ruggles 1999: 95
Clava cairns (SSW) (n=28)	Winter sunset	S. maj and s. min moonsets		Burl 1981: 257-65
W. Scot stone rows (-19° to -31° ; $\geq +27^{\circ}$) (n=189)	Winter sunset	S. maj. and s. min. moonsets; n maj moonrise	"No interest in summer alignments"	Ruggles 1999: 74-76
SW Ire stone rows (SW) (n=48)	Summer rise Winter set	N. maj. moonrise S. maj. Moonset and s. min. moonsets		Ruggles 1999: 106-7

Main alignments found at Avebury and Stonehenge (North 1996).

SITE	SOLAR ALIGNMENT	LUNAR ALIGNMENT	SOURCE
Avebury stone circle	Winter sunset	Southern major standstill moonset	North 1996
Stonehenge 1, 2, 3i	Winter sunset	Southern major standstill moonset	North 1996
Stonehenge 3ii-vi	Winter sunset	Southern minor and s. Maj. standstill moonsets	North 1996

Alignment tendency for stone monuments of late Neolithic and early Bronze Age British Isles:

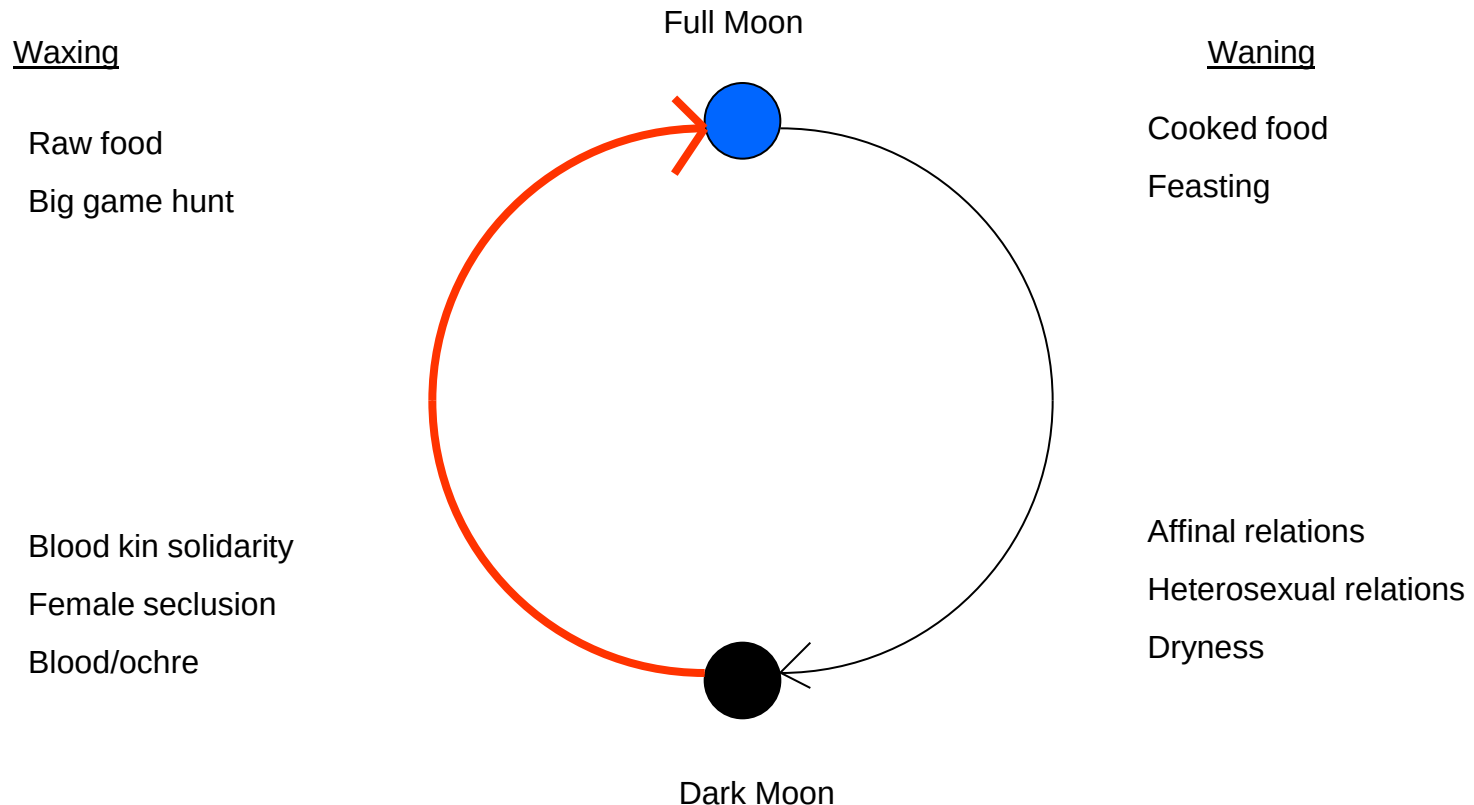
- Five regional groups of stone monuments of the late Neolithic and early Bronze Age have main alignments to the south west.
- These alignments double for winter solstice sunset and the southern (major or minor) standstill moonset.
- In all, 322 monuments have the 'same' double alignment as Stonehenge 3ii-vi, including Stonehenge 1, 2 & 3i.

Synchronicity at standstills of Sun's solstices with Moon's phases

	Full Moon	Dark Moon
Winter solstice	(13.5 days later) Northern minor Northern major	Southern minor Southern major
Summer solstice	(13.5 days later) Southern minor Southern major	Northern minor Northern major

- Bluestones, with mica flecks, may represent night sky on the longest darkest night – dark moon ritual.
- This explains why sarsen Stonehenge (3v-vii), preserves the place, dimensions and forms of earlier versions of ‘Stonehenge’.
- Part of a cosmology that is adapting an ancient forager lunar system to an emerging herder/agriculturalist solar system.

‘Sex-strike’ model of unitary origin to symbolic culture (Knight, Power & Watts 1995; Power and Aeillo 1997; Watts 2005).



Eclipse prediction? Over or mis-interpretation

- Eclipse 'seasons' migrate through the year according to the Saros cycle (18 years and $11\frac{1}{3}$ days).
- During any lunar standstill, eclipses can ONLY occur around the time of the equinoxes, not the solstices.
- Every 9 years, mid-way between lunar standstills, eclipses occur around the time of the solstices.
- Therefore a lunar-solar monument alignment which combines lunar standstill and solstice alignments protects that monument's lunar-scheduled rituals against eclipses.
- Stonehenge is therefore a lunar-solar scheduled monument eclipse avoider!

Stonehenge primary and secondary design properties

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2. Two nested arcs.
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5. Level lintels.
6. Concentric.
7. Tiered in rank order.
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A good theory?

- Have explained '14' design properties which generate another '8' lunar-solar properties by main axial alignment.
- Does not explain '11' 'secondary' design properties.
- Either need another theory, or an elaboration of first one – next talk in two weeks.



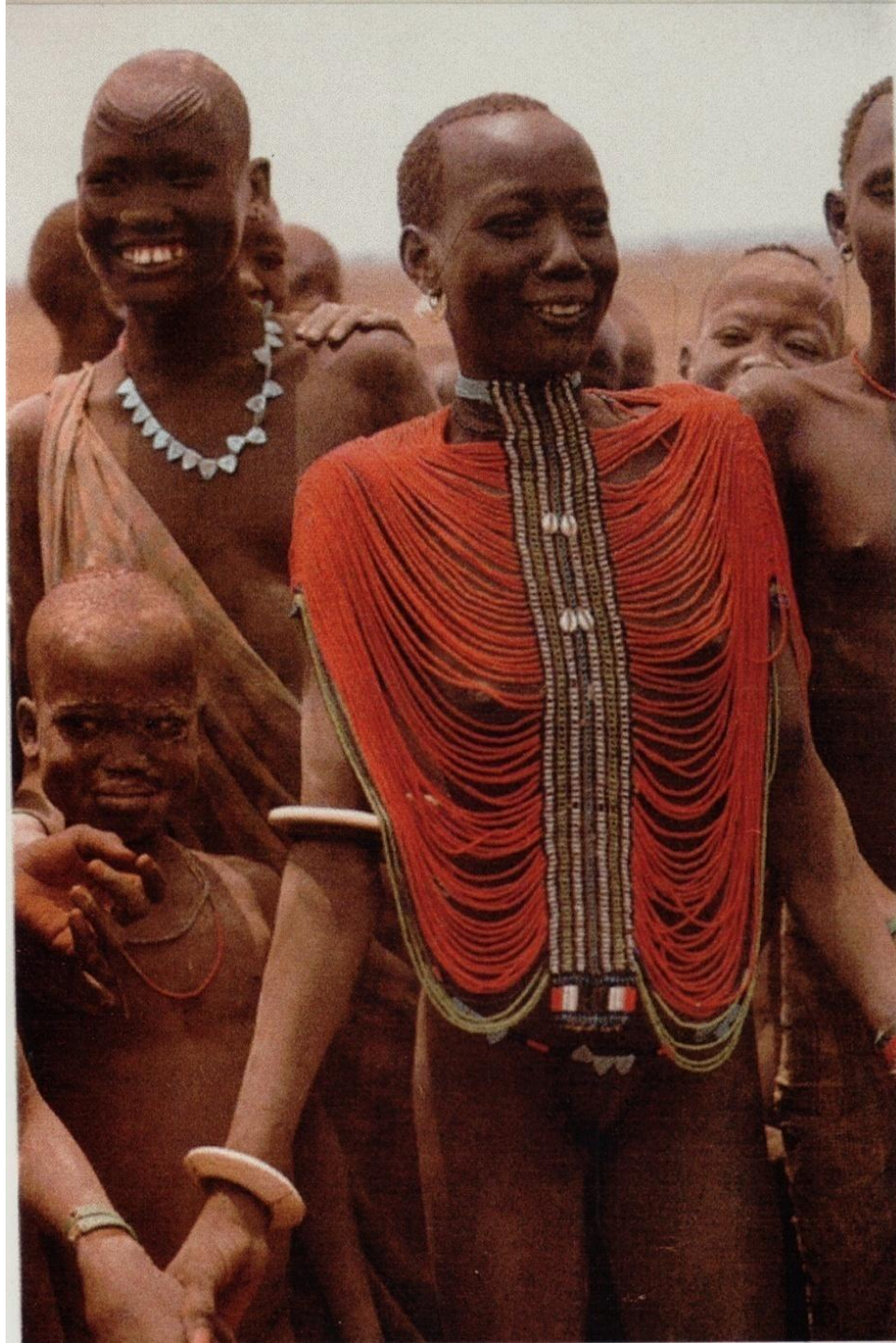






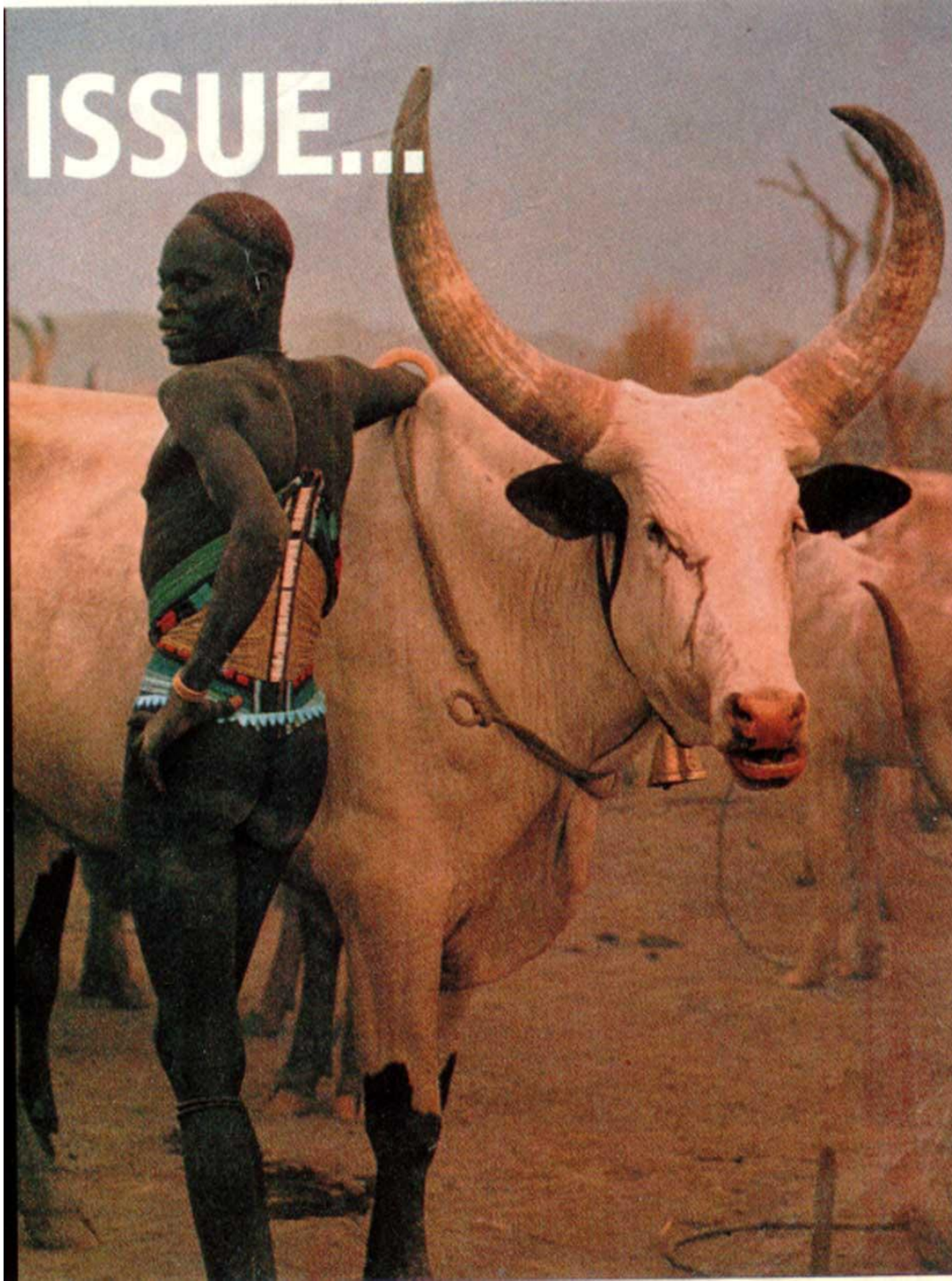
Man

Megatherium





ISSUE...







Stonehenge soli-lunar paired alignment reveals:

- Moon superior to Sun
- Dark Moon
- Dark Moon at winter solstice:
 - a. amplification
 - b. conflation
 - b. estrangement (annualised Moon)
- Axial centre of cosmos
- Stills the descent of the Sun
- Left vs. right viewing from Heel Stone
- Abstracted, reversed and attenuated cycle of lunar phases
- Redundant vs. cryptic signals

These known properties of sarsen Stonehenge refute:

- Solarism
- ‘Scientific astronomy’







Back to the future?

- Two worlds were in contest at Stonehenge five thousand years ago – the waning world of hunters who had respected women's lunar rhythms and the rising world of male cattle-herders and solar governed agricultural property.
- Two worlds meet at Stonehenge today – of a people looking for a vision of a better future, and of an establishment domesticating the monument for the Heritage industry.

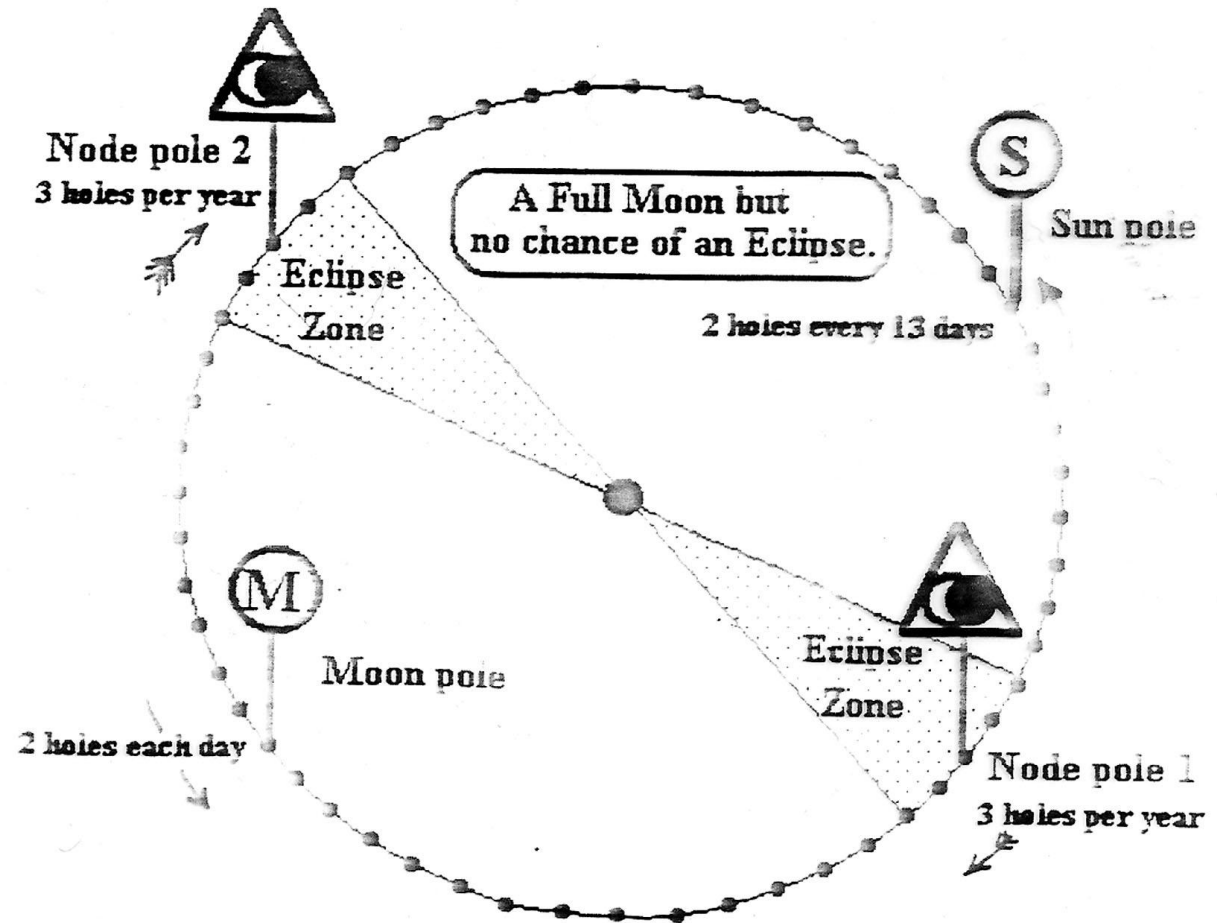
Hawkins (Heath) –
Stonehenge as eclipse
prediction computer.

56 Aubrey Holes as
receptacles for sun, moon
and nodal marker stones.

18.61 year nodal cycle of the
moon – 56 holes good
enough approximation to
predict lunar & solar
eclipses.

Notice that this property
would be 'consistent' with
hyper-SST:

1. Advanced knowledge of
the moon.
2. Lunar eclipses disturb a
ritual system timed by
lunar phases.



Gerald S.
Hawkins

Stonehenge
Decoded
1972

Alternative
Neolithic
Revolution:

Advanced
astronomical
knowledge
very early

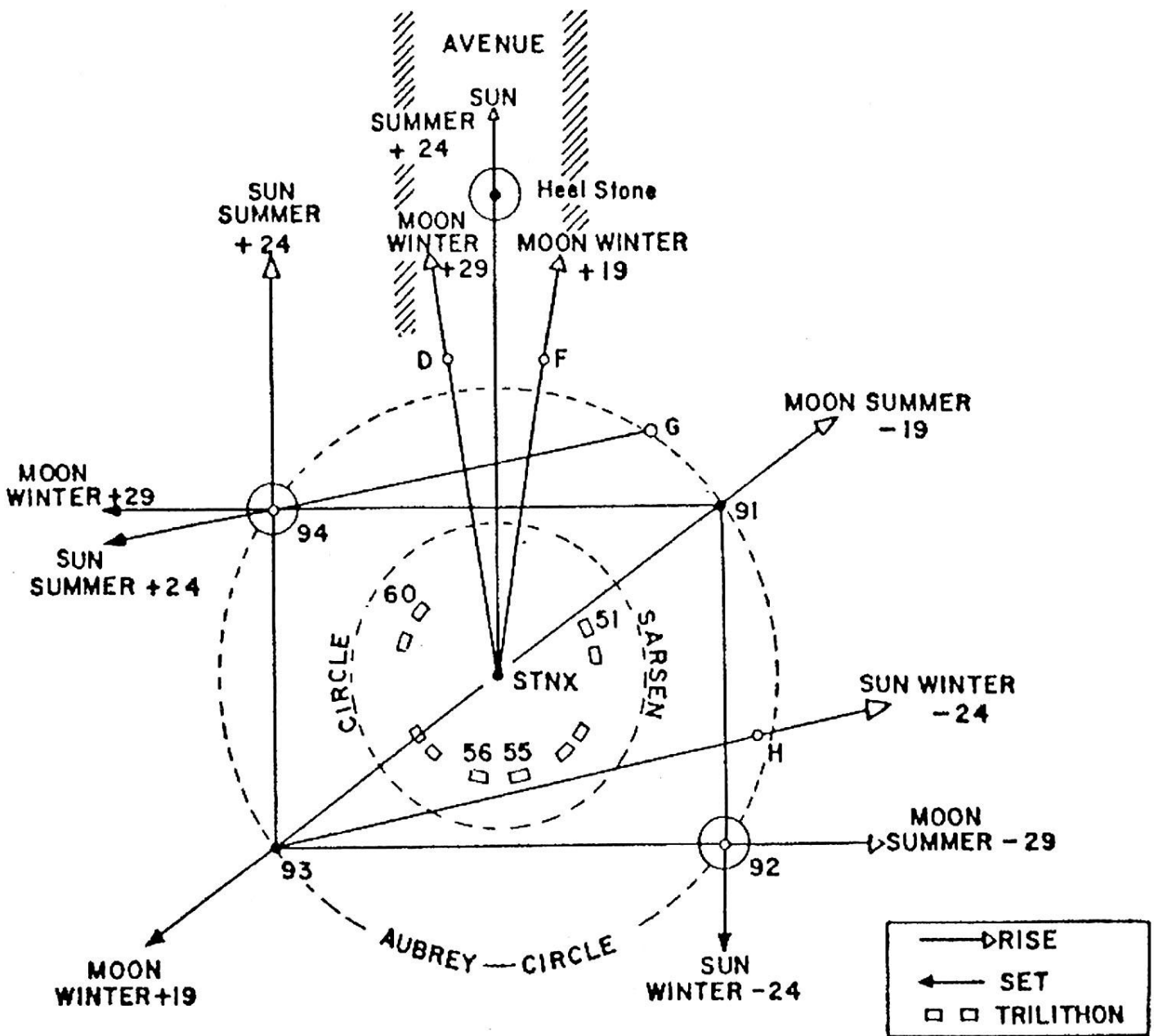


Fig. 1. Schematic plan of Stonehenge