
From Thales to Stonehenge:

How Eclipses were Predicted in Prehistory by 3100 BC



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I

Thales of Miletus

We are told in our history books in the west that Thales of Miletus was “the first” to accurately predict an eclipse. But what is not addressed in our ‘Ionian’ story of history and how mankind develops science is that Pharaonic Egypt was the true cultural mother of all Greek knowledge, even that upon which Thales and Anaximander, and the rest of the Ionian natural philosophers ‘physicist’ so mentioned by Aristotle drew ‘their’ ideas. Thales is known to have studied under the guidance of the Egyptian priesthood, the anonymous sages which guarded a form of knowledge so ‘advanced’ and sophisticated that neither Thales or Heraclitus (who also studied in Egypt) managed to comprehend it entirely. Thales is a good example of this reality, and so is Anaximander, especially in consideration of what they knew of the Luni-Solar geometry and eclipse cycles.

That the Ionian science was far behind that of the ancient Egyptians’ and Mesopotamians can be found in a serious and scientific inquiry of the famous “**Eclipse of Thales**”. The idea that Thales predicted an eclipse (and thus was “the first” to do so) is mentioned in the texts of the Greek historian Herodotus.

The so-called ‘father of history’, Herodotus, (which is a clear proponent of the ‘Greek miracle’) writes a myth in his *Histories* that describes the moment when Thales predicted an eclipse in Anatolia. It is said by Herodotus that this prediction managed to stop the conflict of war raging between the Medes and Lydians at the time. According to Herodotus, Thales was able to predict an eclipse around 585 BC, and modern science has made of this myth a fundamental ‘fact’ which is the pillar of the Greek miracle fallacy in the history of science.

The actual story, when it is verified by the science of astronomy of today, as well as the historical records, is quite different:

A number of scientists have a-priori doubts about the ability of Thales to predict solar eclipses. There was no eclipse prediction; hence what Herodotus reports about Thales is a myth. If the solution is that simple, then the year 585 can be of little consideration for historians attempting to set these events into chronological sequence. Other scientists disregard historical factors altogether **in their attempts to save Thales and his prediction**. They speculate that, although Thales could not have used a methodology developed by Chaldean astronomers, he may have learned of some other principles upon which he based his prediction. Hence they defend this or that eclipse date based on their own view of what Thales' methodology must have been, without consideration of the problematic chronologies involved.

(...) The Median conquest is firmly dated through these [Babylonian] records to 550 BC using the Babylonian terminus, and by Herodotus' length for Astyages' rule of thirty-five years, one can posit that the date of the king's accession to ca.585. As was noted above, however, historians of later antiquity dated the eclipse to the 49th or 50th Olympiad (585- 577). Among these sources, Pliny (N.H. 2.53) gives a specific year (Ol. 49.1 = 585).

Since Herodotus takes pains to give the length of rule for each of the Persian and Median kings, however, one can count the historian's contiguous regnal lengths backward from the sixth year of Xerxes to Kyaxares. By that method, the death date of the latter must be about 595. There is a ten-year discrepancy. Furthermore, there is alternate tradition that names Astyages as the Median king at the critical battle with Alyattes. These inconsistent data from antiquity need resolution. Herodotus' own data do not match the date later antiquity gave to the eclipse he says marks a crucial battle led by the king Kyaxares. **The crux involves the reputations both of Herodotus and of Thales**. We may discard Thales' prediction entirely, thus freeing the chronological debate from any date set by

astronomy. At the other extreme we might completely readjust the Median chronology to suit the eclipse date of 585.

(...) There are two solar eclipses during the period in question that were visible from Asia Minor: the morning eclipse of 30 September 610, and the morning eclipse of 18 May 603.

What about Herodotus' description of the battle eclipse makes it unique and so assignable to one eclipse more than another? Herodotus says that the event occurred near the onset of the battle. If so, then choosing the eclipse of 585 entails an anomaly unless the battalions began their skirmish late in the day. That eclipse did not begin until 4:20 (3:52) p.m. local time. The historian also records that day became night and that night came about in place of day. If we take this to refer to a solar eclipse, it must have been a total solar eclipse. As seen from the region of the Halys river (assumed site of the battle), however, the eclipse of 28 May 585 covered no more than magnitude 0.6 (.9). Such an eclipse might even go unnoticed should it occur when the sun is high in the sky. Herodotus's description purports to be true to the occasion, but 'suddenly' could not be true to observation surrounding the eclipse of 585.

(...) This eclipse [of 603 BC], however, darkened the skies over the Halys less than that of 585. The track of totality for the morning eclipse of 18 May 603 was farther to the South of the supposed battle zone than the other two were to the North, and therefore it was no more striking. The only advantage these candidates may have is that they both occurred prior to either date (585, 595) calculated for Kyaxares' death.

(...) The historical tradition reports that Thales did predict the eclipse of 585 and celebrated the scientist as a rare genius. It is noteworthy, however, that the doxographical tradition about Thales makes no such claim for his prediction of a solar eclipse, only that he understood the phenomenon.

(...) The year 585 must be forever forgotten as important to Thales and his science. **Indeed, we must declare, with others, that there was no such thing as Thales' prediction of a solar eclipse.**¹

It is interesting to observe how Worthen speaks of the recurrent intention among modern scientists and historians to 'save Thales and his prediction'. Why? Because we have built a fiction of Ionian genius which supports our modern paradigm of scientific materialism. A fiction about physics and rational science having its beginning with the Greeks. This is what the modernists are trying to save. The reality, as Worthen shows, is that it is not only the reputation of our dear 'father of science' but also that of our 'father of history' which is compromised in the disclosure of this fiction, and that means the reputation of our hypothesis of the history of scientific thought.

Indeed, Herodotus was telling a myth, and it was well received in the Greek world as historical fact because it celebrated the supposed genius of a Greek philosopher recognized as one of the mythical Seven Sages. This myth is also well received by the modernists for the obvious reasons that it is linked to a materialist or naturalist outlook of the world proposed by the Ionians. The reality is that Thales did not predict an eclipse, and he never even understood the celestial mechanics involved. We know this because Anaximander's postulates of the solar system in no way allow one to predict eclipses, and Anaximander studied with Thales. If Thales knew the mechanics of solar and lunar eclipses (as the Babylonians and Egyptians knew them), his student Anaximander would not have presented us with a model of the Solar System that is akin to the guess of a 4 year old.

What Thales did have, however, was a copy of Egyptian star catalogues and dates for eclipses, a reality that is easily appreciable in the fact that he gives dates for risings and settings for stars which do not correspond to the geographical latitude of Miletus where he lived, but that of the lower latitudes of Egypt.

¹ Thomas Worthen, *Electronic Antiquity* Vol. 3 Issue 7 - May 1997 edited by Peter Toohey and Ian Worthington antiquity-editor@classics.utas.edu.au ISSN 1320-3606.
<https://scholar.lib.vt.edu/ejournals/ElAnt/V3N7/worthen.html> (Bolds are ours)

Thales of Miletus is cited by both Diodoros of Sicily (I.96) and Clement of Alexandria (Strom.) as among those Greek philosophers and sages who received instruction in Egypt. One is inclined to believe, however, that Thales either learned very little from the Egyptian priests, or else transmits but a smattering of their teaching. For besides the theorem that bears his name, some merely fragmentary data of Egyptian origin, technical in nature, are attributed to him. These include:

- knowledge of the Pharaonic vague year of 365 days, not of the Sirian year of 365.25 days.

- knowledge of the nonuniformity of the sun's annual circuit and the determination of equinoxes and solstices;

- several dates of star risings relative to a much more southern climate than that of Miletos, hence obviously borrowed from the Egyptian star guides;

- prediction of a total eclipse in 610 BC which made him famous although he was not considered capable of explaining it. Given that no Greek contemporary [to Thales] had sufficient knowledge of astronomy for calculating eclipses in advance and that tradition places Thales in contact with Egyptian priests, one is compelled to admit he must have derived from the latter his rudimentary knowledge of astronomy. The prediction of eclipses, which was common in Chaldea [Babylon] at that time, presupposes knowledge of luni-solar cycles. This knowledge was not introduced into Greece until about 400 BC by Eudoxus of Cnidos who was also instructed in Egypt and apparently acquired a much more complete knowledge of astronomy in that country.²

The 'genius' of Thales which is so often evoked in the Greek miracle hypothesis of modern science and physics is a complete fallacy: an invention of Herodotus in order to build nationalistic pride among the Greeks and champion this culture as highly intellectual, and in such a strategy of making the Greeks look as geniuses, it was necessary to overlook those cultures that had already been predicting eclipses for thousands of years during the entire length of the Dawapara Yuga or Bronze Age on the precessional cycle.

Here we will teach the reader how to predict eclipses and thus show how prehistoric monuments of Britain like Stonehenge display all the necessary technical know-how for eclipse prediction.

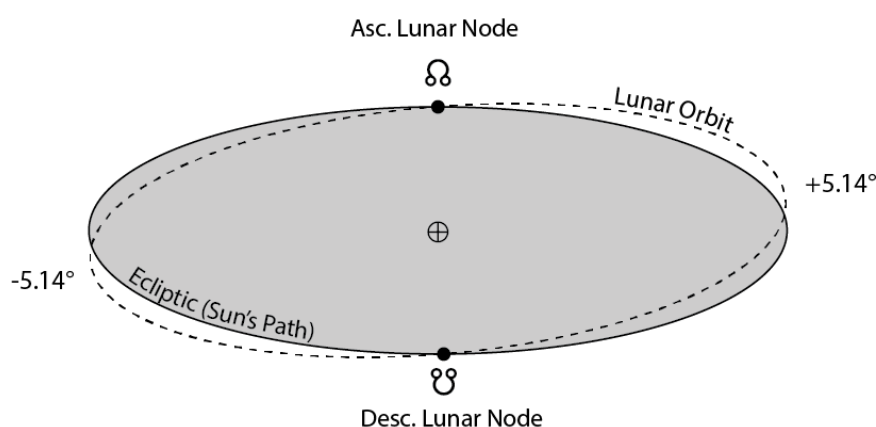
² R.A. Schwaller de Lubiez, *Sacred Science*, p.252-253.

II How to Predict Eclipses

Eclipse Geometry and Astronomy

The Moon's course around the Earth is tilted with respect to the path of the Sun by about 5° , so the Moon's orbital course does not run around the Earth in the same plane as the Sun does. Eclipses between Sun and Moon occur when both their bodies cross each other through the *Lunar Nodes*: the points of intersection or crossings of the Moon's and the Sun's own paths:

The Lunar Nodes

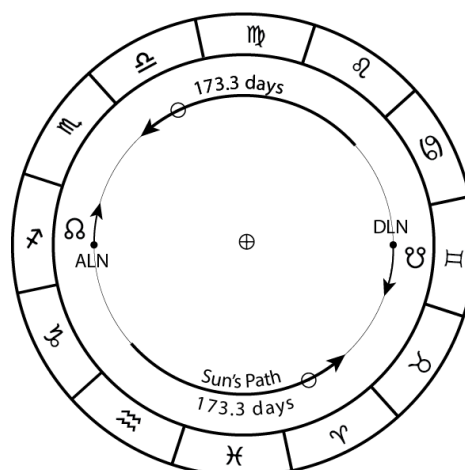


If the Moon's course would not have this 5° inclination, there would be a solar and lunar eclipse every single month, and we would never know what a Full Moon looks like! But because of these 5° of tilt for the lunar course in relation to that of the Sun observed in heaven, eclipses only occur on months when the Sun is near a Lunar Node: the point of crossing between the Ecliptic (Sun's path), and Lunar orbit. As the Sun crosses each Zodiac Sign, the Moon crosses the Zodiac much faster and catches up or laps the Sun's position on every New Moon. When the Sun travels around the zodiac, it reaches the place of the lunar node and so it places itself right on the path of the Moon. Now the Moon will eclipse the Sun on its monthly revolution.

This moment when the Sun reaches a lunar node happens every 173.3 days, in a period known as the *Eclipse Season*. Every year has eclipses, but because of this 5° inclination, they reoccur in accordance to the matching of the Sun's position with a lunar node. After the Sun catches a lunar node, it takes another 173.3 days for it to catch the next node. However, the time it takes for the sun to catch the same lunar node is twice as long and it is known as a *Draconic Cycle* or *Eclipse Year*. This period of 346.6 days is the time taken for the Sun to catch the same lunar node.

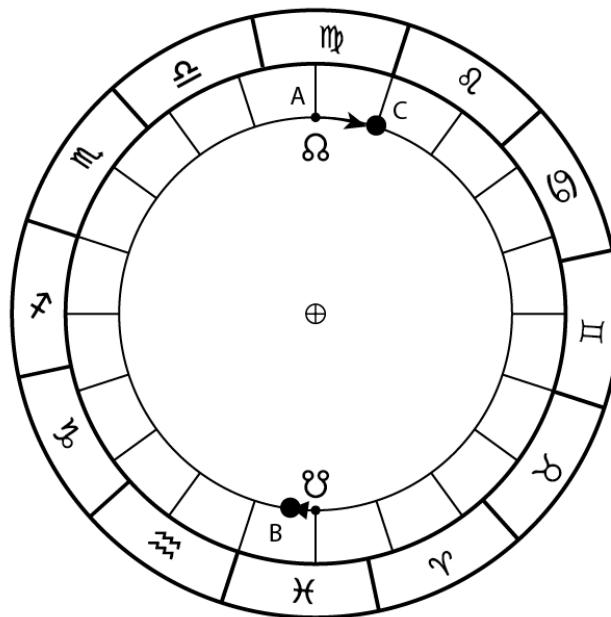
Now, the *Lunar Nodes* are ascending (ALN) and descending (DLN), and they shift their position by some 18° every year, and this is why it takes 173.3 days and not half a year of 182.25 days for the Sun to make its way to the following lunar node. The nodes themselves follow a precessional movement, and they turn in the opposite direction of the Sun's yearly course through the zodiac in

The Eclipse Season and Year Draconic Cycle



the same way that the Solar Cross does because of precession. This means that eclipses will occur in different Signs of the Zodiac in turn by a specific geometry illustrated in the following image. The easiest way of predicting the celestial position of an impending eclipse between the Sun and Moon is by dividing the 360° circle of the Ecliptic into 20 fractions of 18° and over imposing the Zodiac: this is the method followed by the Mesoamerican Astronomers with their 20-fold division of the “sacred calendar”.

Precession of the Lunar Nodes



-A Solar Eclipse occurs at point A where the Asc. Lunar Node is. The Sun travels counterclockwise through the Zodiac and meets the Desc. Lunar Node at point B. Here the node has moved about 9° in the 173.3 days it took the Sun to get there. Next, the Sun arrives at point C where another Solar eclipse occurs, on day 346.6, now 18° (1/20th of the cycle) from point A. The whole precession of the nodes is complete after 6793 days. The 20-fold division of the Ecliptic helps predict the position of Eclipses in the Zodiac.

A Golden Cycle

Cycle: $\varphi = 0.61803398$

Tropical Year: 365.242 $(18+\varphi) \times (19+\varphi)$

Draconic Cycle: 346.6 days $(18.+\varphi)^2$

*The distance in days between these two periods is 18.618 days...

The revolution of the Lunar Nodes around the Zodiac can be calculated as 18.618 Solar Years, that is, $18.618 \times 18.618 \times 19.618$ days. This period thus equals the Draconic Cycle times 19.618 ... the time of 230 Lunations.

II

How to Predict Eclipses

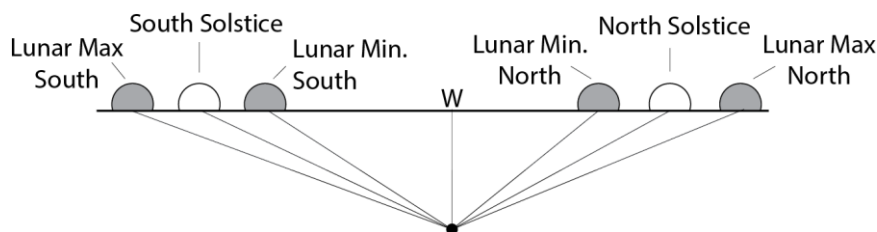
Lunar Standstills

The knowledge of the Draconic cycles allows for eclipse predictions, and we also mentioned a 18.618 year cycle wherein the lunar nodes revolved around the zodiac. But how Man learned this on Earth requires a perspective from the Earth, where the pattern is firstly recognized by monitoring the position of the Moon's settings (or risings) on the horizon.

The Sun has solstice positions which mark its farthest north and farthest south settings. The solstices, as we know, mean "sun-still" in Latin and the designation comes from the idea that the journey northwards or southwards of Sun and Moon slows down, comes to a halt, and turns around. The Moon does the exact same thing, only that instead of taking a year as the Sun does to come back to the "still" point and "draw its amplitude", for the Moon it takes only a *Draconic Month* to "draw" its current "amplitude".³

In the case of the Moon, there is another play at work. The Moon's maximum amplitude between standstill points are not always at the same distance like the Solstices which are fixed today at $23^{\circ}27'$. Instead, the *amplitude* of the Lunar standstills varies between a large angle of about 28° North and South, and just 18° North and South with respect to the East-West axis or 0° .⁴

Lunar Standstills



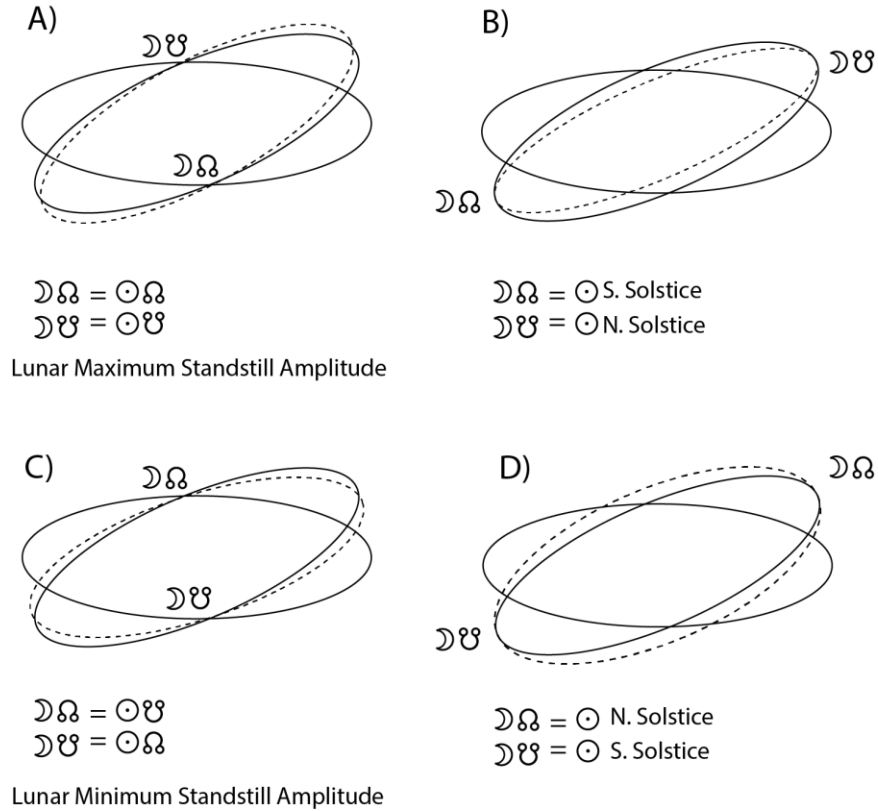
This variation between maximum and minimum amplitudes varies in 9.309 years (half of the Draconic Cycle). For example, in 2015 AD, the Moon's standstills were at their *minimum amplitude*: the Moon set in the minimum north location and made its way to the minimum south location in a *Draconic Month*, drawing its minimum amplitude. It will widen this minimum amplitude over a period of 115 Lunations, and in the year 2024 AD it will reach its *maximum amplitude*, setting then 5° north from the North Solstice point, and 5° south of the South Solstice. In order to reduce this largest amplitude again to a minimum and finish the Draconic Cycle, another 115 lunations will pass, and in the year 2033 AD, the Moon's standstills will be again at their shortest amplitude.

This pattern of the *Lunar standstills* is very much linked to the revolution of the lunar nodes around the Zodiac. The best way to understand this is to acknowledge that the Sun has its own nodes which are the equinoxes, and its own standstill positions which are its farthest north and south positions along the horizon. As we see in the diagram that follows, there are four basic configurations of the lunar nodes with respect to the solar nodes or equinoxes-solstice positions of the Sun.

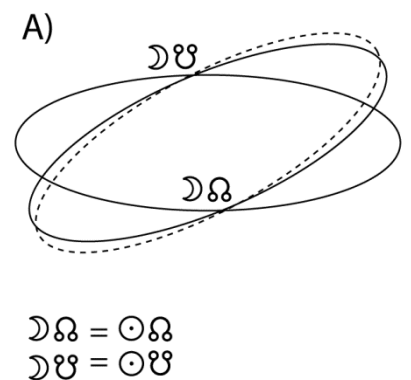
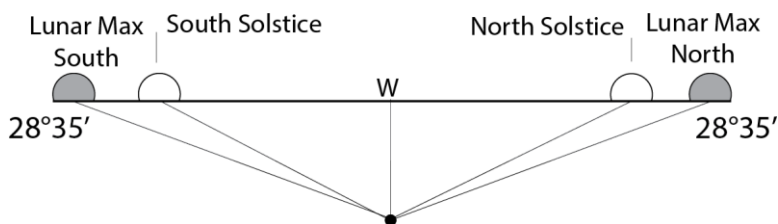
³ This month is the *Draconic Month* of 27.2122 days: the time taken for the moon to return to one of the lunar nodes.

⁴ We will recall that the Moon's orbit is tilted 5° in reference to the ecliptic. Thus $23^{\circ}+5^{\circ}=28^{\circ}$, and $23^{\circ}-5^{\circ}=18^{\circ}$. This is an approximate value used here in order that the reader will understand the logic behind this cycle.

Lunar Node Configurations And Standstill Moments

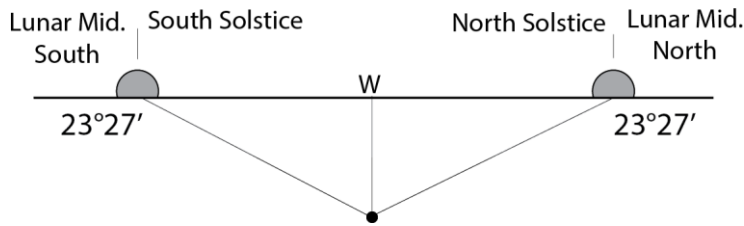


Moment A)

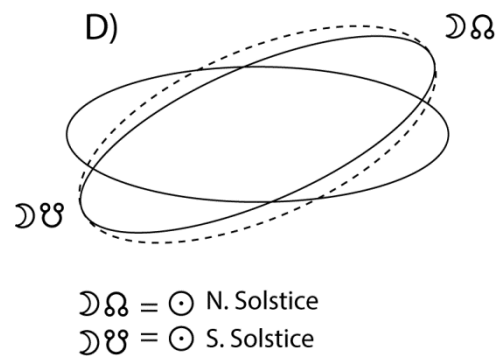
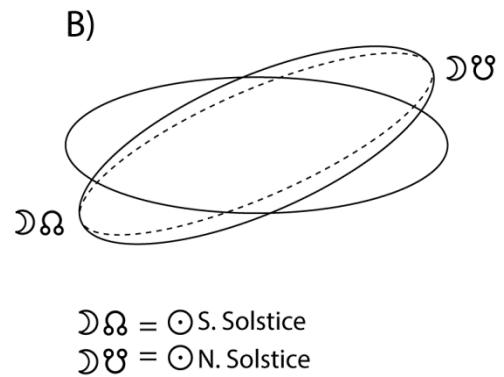


A) The lunar nodes match the Sun's nodes or Equinoxes: Ascending Lunar Node matches Ascending (Vernal) Equinox, and Descending Lunar Node matches the Descending (Autumnal) Equinox. At this moment the Sun's "amplitude" and that of the Moon are added to provide a $28^{\circ}35'$ maximum standstill position. With this position, Eclipses will occur when the Sun is near its Equinox point.

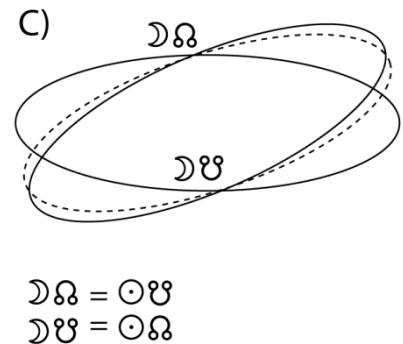
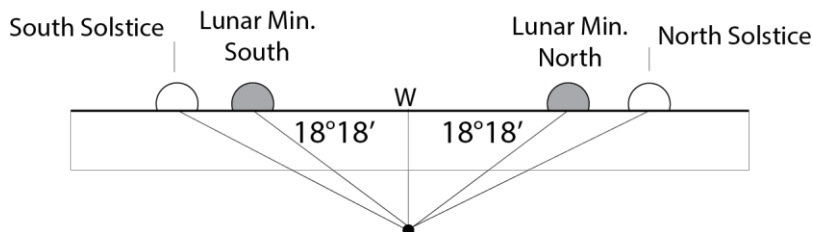
Moments B) & D)



B) Now 4.65 years have gone by: a quarter of the 18.618 year cycle. We can see that the lunar nodes now match the positions of solstices, so Eclipses will occur near the day of solstice. The amplitude of lunar standstills has been decreasing since A) and has reached a moment where it will not exceed the $23^{\circ}27'$ angle north and south of the Ecliptic, North and South over the horizon. This will be seen as the opposite moment of D), and both moments B) and D) are the mid-way positions between maximum and minimum amplitudes. The only difference between B) and D) is whether the amplitude is growing or decreasing.



Moment C)



C) The lunar nodes have once again matched the location of the solar nodes or equinox points. However, in comparison to A), now the ascending and descending designations are inverted with respect to the Equinoxes or “solar nodes”. The Ascending Lunar Node is matching the position of Descending (Autumnal) Equinox, and Descending Lunar Node is matching the position of the Ascending (Vernal) Equinox point. This configuration of the nodes will show the Minimum Lunar standstill positions on the horizon, since the 5.14° deviation from the Ecliptic is now closest to the East-West axis for the observer on Earth.

At C), 9.309 years have passed since moment A) and half the Draconic Cycle is complete.

The return to Maximum Lunar Standstill will pass by D) after 4.6545 years, and return to A) completing the Draconic Cycle. The Draconic Cycle is complete after 6793 days, which is also 230 Lunations.

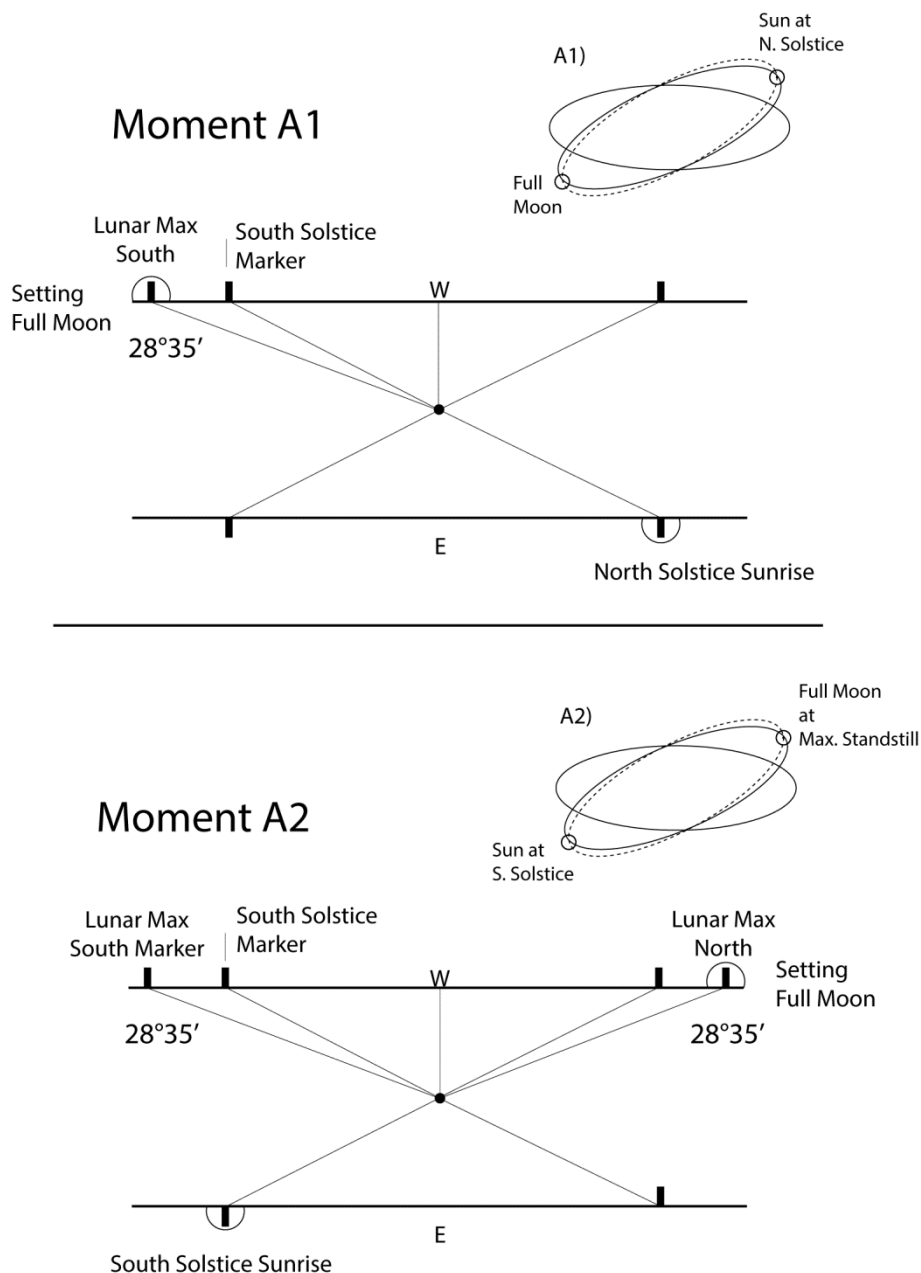
Lunar Minimum Standstill Amplitude

Marking the Standstills

Predicting Eclipses demands a bit more understanding with regards to the light reflected on the Moon. Let us consider moment A) and notice that the position of the Moon setting at it's Max Standstill position is best appreciated on a Full Moon.

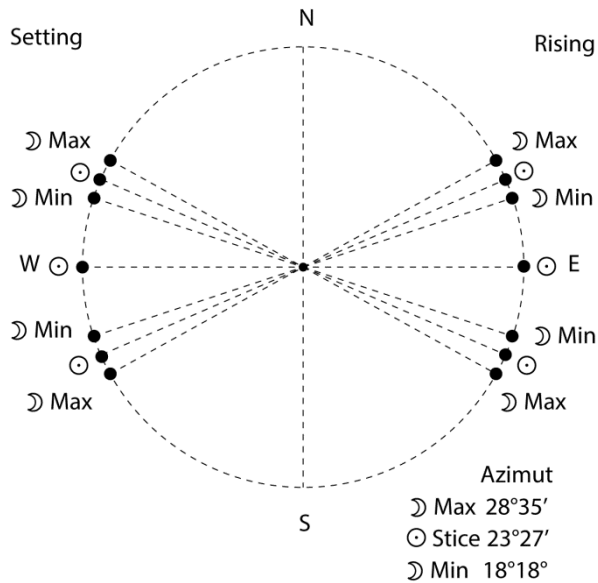
The moment when this Lunar Max. Standstill will become visible to an observer from Earth is the moment when the Moon sets on the horizon, but *the Moon's light will vary according to position of the Sun*. In order to see the Lunar Max. Standstill in Full Moonlight, it necessarily that the Sun is facing the Moon opposite to it in their cyclic wandering in the heavens. To see the Full Moon at its Max. Standstill, the fixed moment of the solar year is the Solstice.

The very shifting of the Lunar Nodes is appreciated in the horizontal visual from Earth, as the Moon's setting position moves back and forth like a pendulum beyond the point of solstice. The best form to register this cycle on Earth is by the construction of a naked-eye observatory with a circular form, whereby wooden posts or stones are placed according to the Soli-Lunar standstill positions.

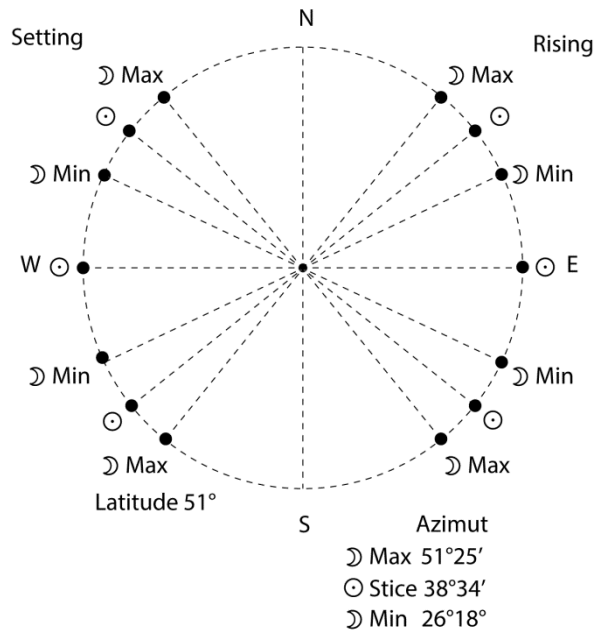


In following these guidelines, the pattern formed from a bird's-eye view is a circle marked by 8 principal posts which denote the directions on the East and West horizons for Solstices, Equinoxes, and Lunar Standstills.

Bird's Eye View of Standstill Markings Latitude 0°



Bird's Eye View of Standstill Markings Latitude 51°



Here we can see how the sightline geometry varies according to latitude. On Lat.0° (on the Equator) the amplitude of the Soli-Lunar standstills is smaller than an absorber standing at Lat. 51 N. The latter latitude is that of Stonehenge, the megalithic complex in Britain which demonstrates this scienc of standstills and the Draconic Cycle in the archaic language of stars and stone.

III

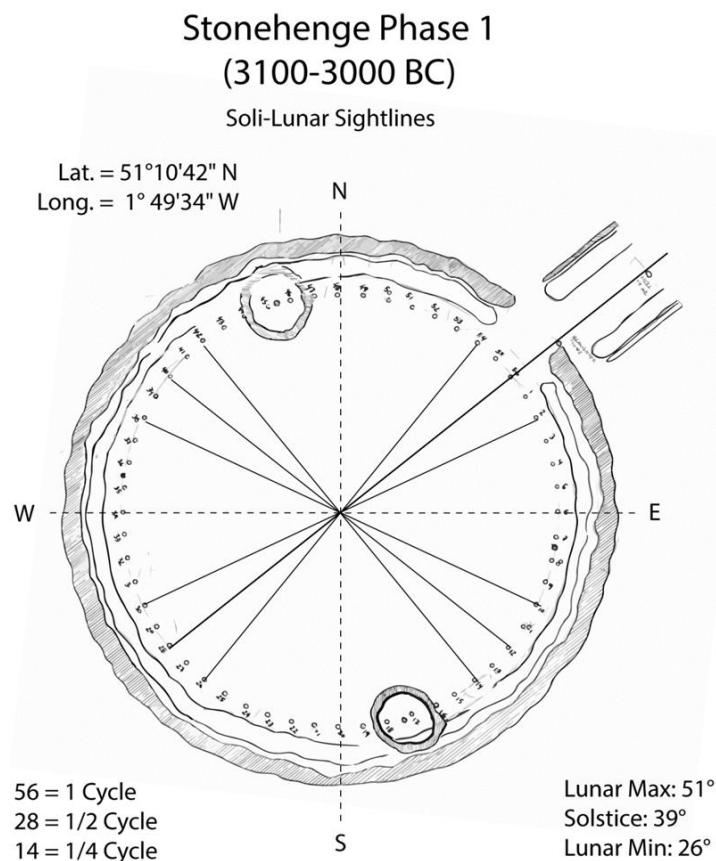
Stonehenge and Eclipse Prediction

Stonehenge Phase I: 3100-3000 BC

On an interesting note to this subject of eclipse prediction, it is worth mentioning that Stonehenge, the most famous megalithic structure of Britain, was actually an astronomical observatory designed in such a way that it allowed eclipse prediction. Many other megalithic sites in Britain have a Soli-Lunar standstill arrangement, among them the northernmost sites of Callinish and Stenness.⁵ But Stonehenge “teaches” the Draconic Cycle inasmuch that it has an ingenious design meant to serve for eclipse prediction and monitoring of Soli-Lunar node geometry and tempo.

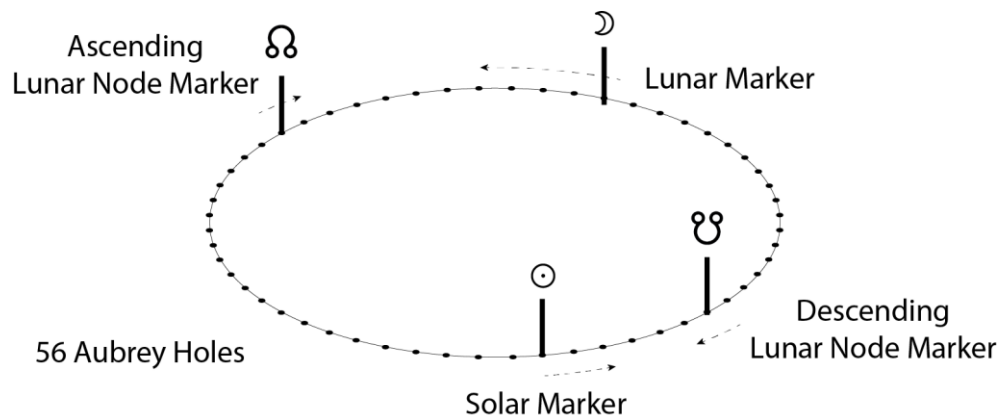


The very first phase of Stonehenge had is dated to ca. 3100-3000 BC, and this first phase is known to have involved the positioning of 56 holes near the surrounding bank and ditch of the complex. There was a solstice alignment of this earthwork with an opening to the north-east that was directed towards the North Solstice sunrise.



⁵ Gail Higginbottom and Roger Clayb, *Origins of Standing Stone Astronomy in Britain: new quantitative techniques for the study of archaeoastronomy*, Canberra, August 2016, Journal of Archaeological Science: Reports 9, DOI: 10.1016/j.jasrep.2016.05.025. Link: <https://arxiv.org/ftp/arxiv/papers/1402/1402.1338.pdf> (Callanish and Stenness Soli-Lunar alignment on p.16)

Stonehenge Aubrey Circle Eclipse Predictor

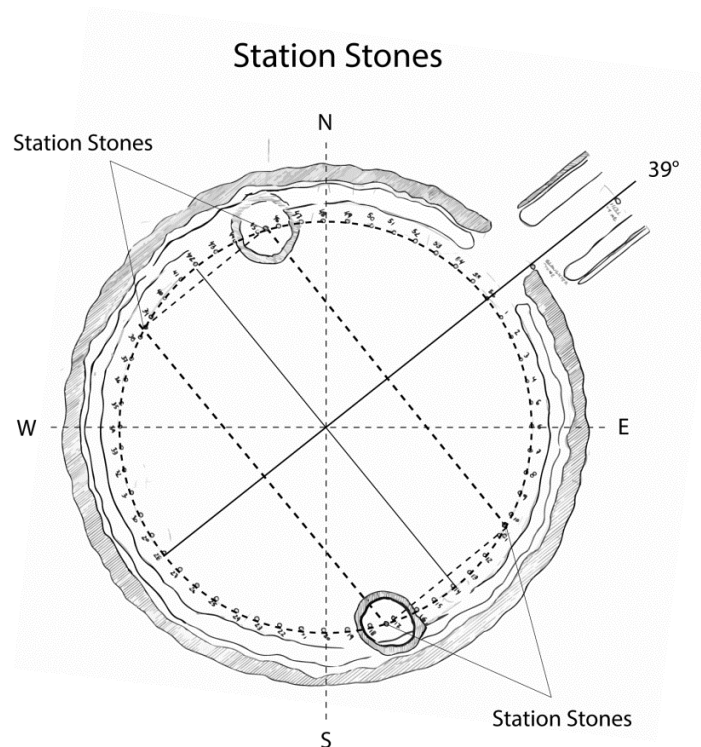


As this illustration shows, the 56 holes placed around Stonehenge known as the Aubrey holes enable eclipse prediction. By placing posts as markers for the Sun, Moon, and Lunar Nodes, eclipses could be predicted very simply. As we have seen, the Lunar Nodes rotate around the circle contrary to the direction of both Sun and Moon.

The Solar post would be moved two holes every 13 days in order to follow the yearly path of the Sun around the Zodiac, while the Lunar post would be moved two holes each day. Both solar and lunar posts would revolve in a counterclockwise direction (E-N-W-S), opposite to that of the nodes. The posts for the Lunar Nodes will be shifted 3 holes every solar year. Every time the solar marker reached the position of a node, the ancient astronomers would know an eclipse was coming as soon as the Lunar marker also approached a node post.⁶

These Aubrey holes were actually part of the first phase of construction in Stonehenge and belong to a time around 3100 BC. This is 2500 years before the Ionians like Thales, who, by the way, was not capable of predicting eclipses at all, as they knew not the mechanics of Solar Lunar cycles and lunar nodes. One of the curious features of the Stonehenge Luni-Solar alignments is that the north solstice-sunrise/south solstice-sunset line forms a perfect 90° with the axis of the lunar-max.-morth-set/lunar-min.-south rise. The builders also positioned 4 Station Stones, two of them, the ones proximate to the north and south, stand upon mounds.

The first astronomical marker at Stonehenge is an East-West sightline fixed by three wooden posts⁷, for which the radiocarbon analysis gave the date of 7500 BC.



⁶ Robin Heath and John Michell, *The Lost Science of Measuring the Earth: Discovering the Sacred Geometry of the Ancients*, 2015.

⁷ Today these are in the adjacent parking lot, marked in round white paint.

Stonehenge Phase II: 2400-2600 BC

Now, this matter of lunar standstills was very well understood in prehistoric Britain where today we find the remains of hundreds of stone circles showing astronomical alignments. Stonehenge is well known to show alignments for the lunar standstills as well as solstice moments.

In the following diagrams we can see the megalithic structure of Stonehenge: the sarsen circle which contains a set of 30 standing monoliths of 20 tons each surrounding an inner horseshoe structure with even larger trilithons of 50 tons each. The sarsen stones are sandstone blocks which were carried to Stonehenge from a northern location some 25 miles away.

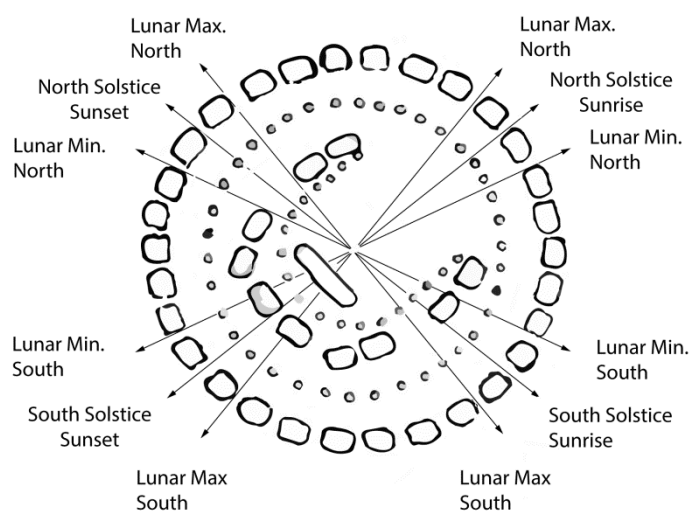
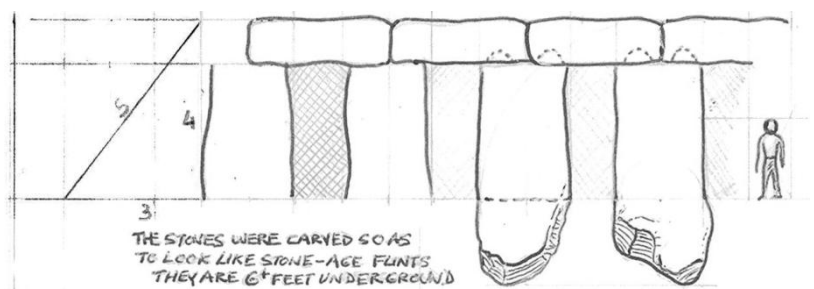
In the diagram below showing a reconstruction of the Soli-Lunar sightlines, we have removed the lintels which top the vertical stones in order to see the possible sightlines in accordance to the Sarsen Stones. It is believed this impressive stone feature was constructed around 2600-2400 BC, some 500 years after the first phase when the 56 aubrey holes were set in place and the ditches were dug.

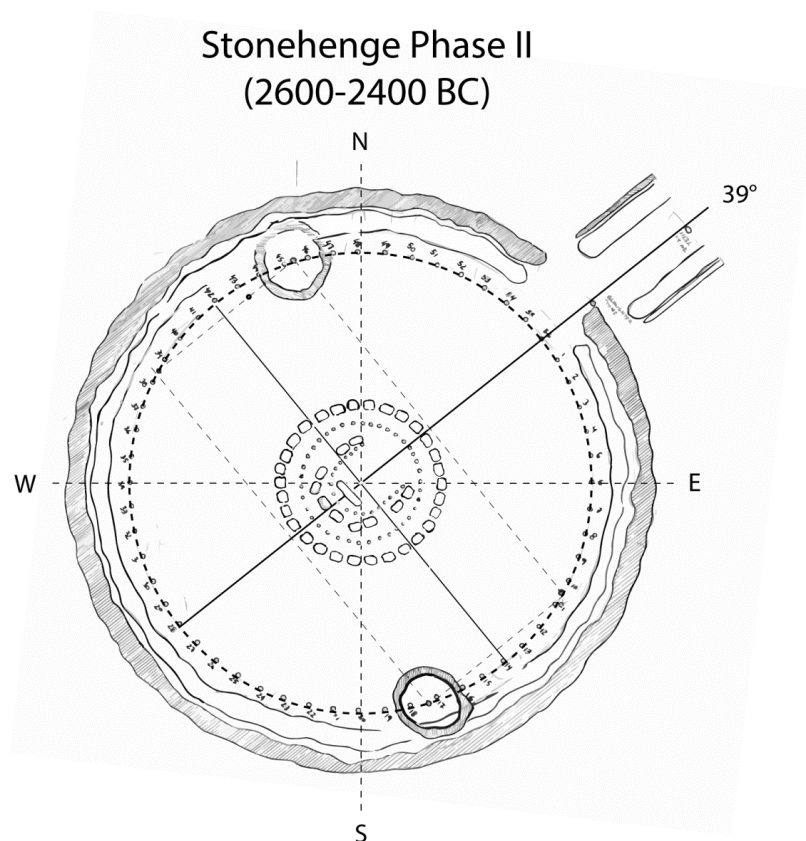
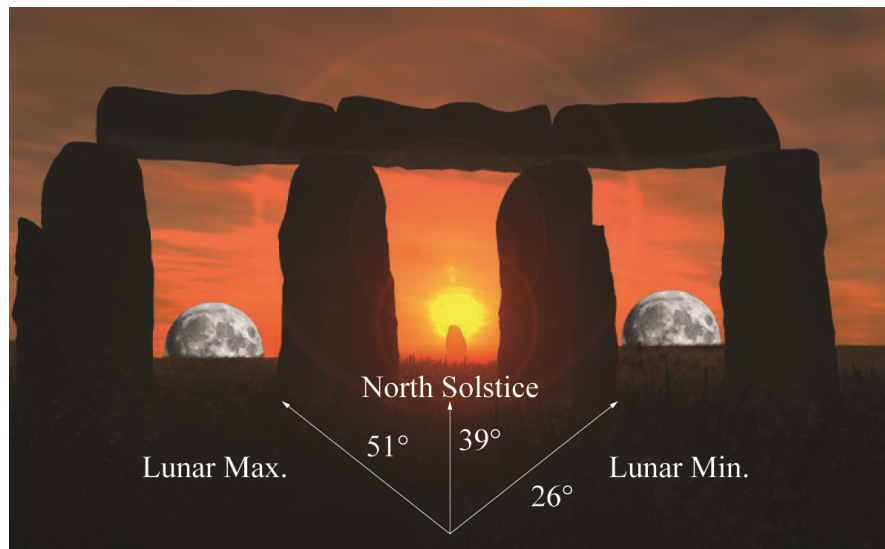
In any case, the prehistoric peoples of Britain not only knew the Draconic Cycle but constructed enormous monuments on grounds that were designed according to astronomical phenomena.

Over 2500 years before the Greeks, the prehistoric inhabitants of Britain were well acquainted with the science of soli-lunar cycles and had no problem in predicting eclipses. One of the geometries used in the sarsen megaliths is the 3:4:5 triangle. We call this triangle “Pythagorean”, but Pythagoras lived around 550 BC, and these constructions took place 2000 years prior to that time...

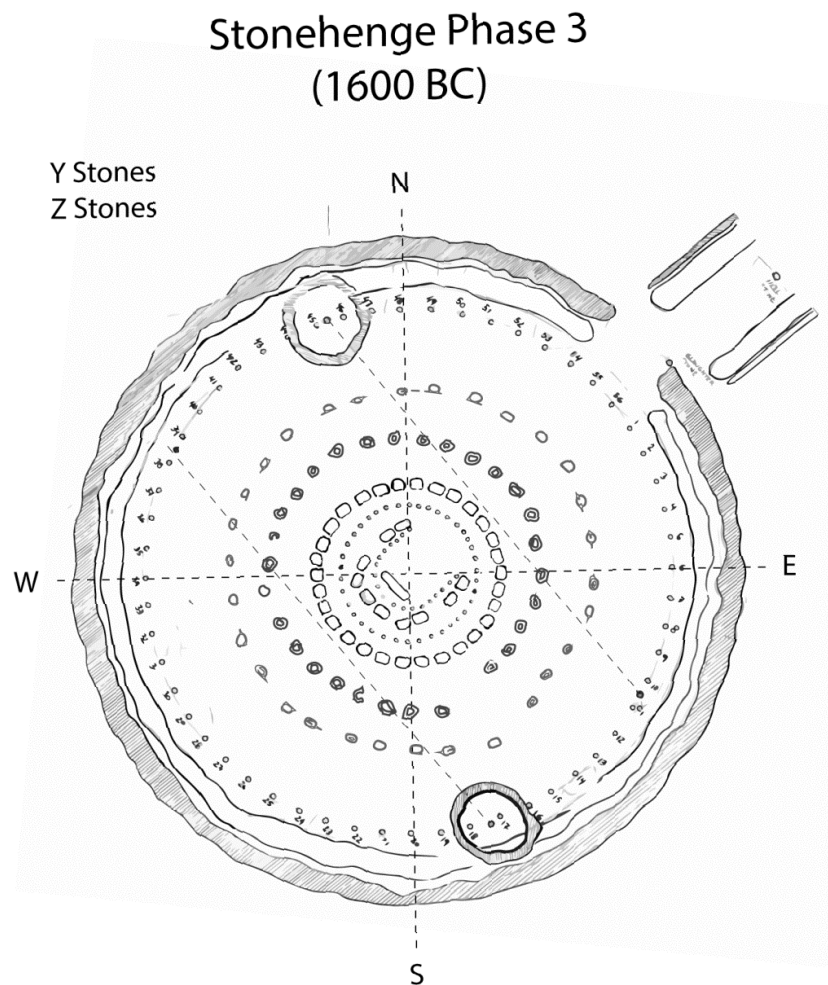
In the west we seem to have inherited a backwards tradition of championing Greeks in general with the “first-to” congratulation without much care for the knowledge of archaeoastronomy that has been acquired for over a century.

Although a certain affirmation about the sightlines of the Sarsen Stones is cannot be given due to the current deteriorated state of the Sarsen Circle and the Trilithons, it is phase I of Stonehenge which shows best that the site was built to monitor Soli-Lunar standstills and predict eclipses in a simple and elegant manner.





Stonehenge Phase III: 1600 BC

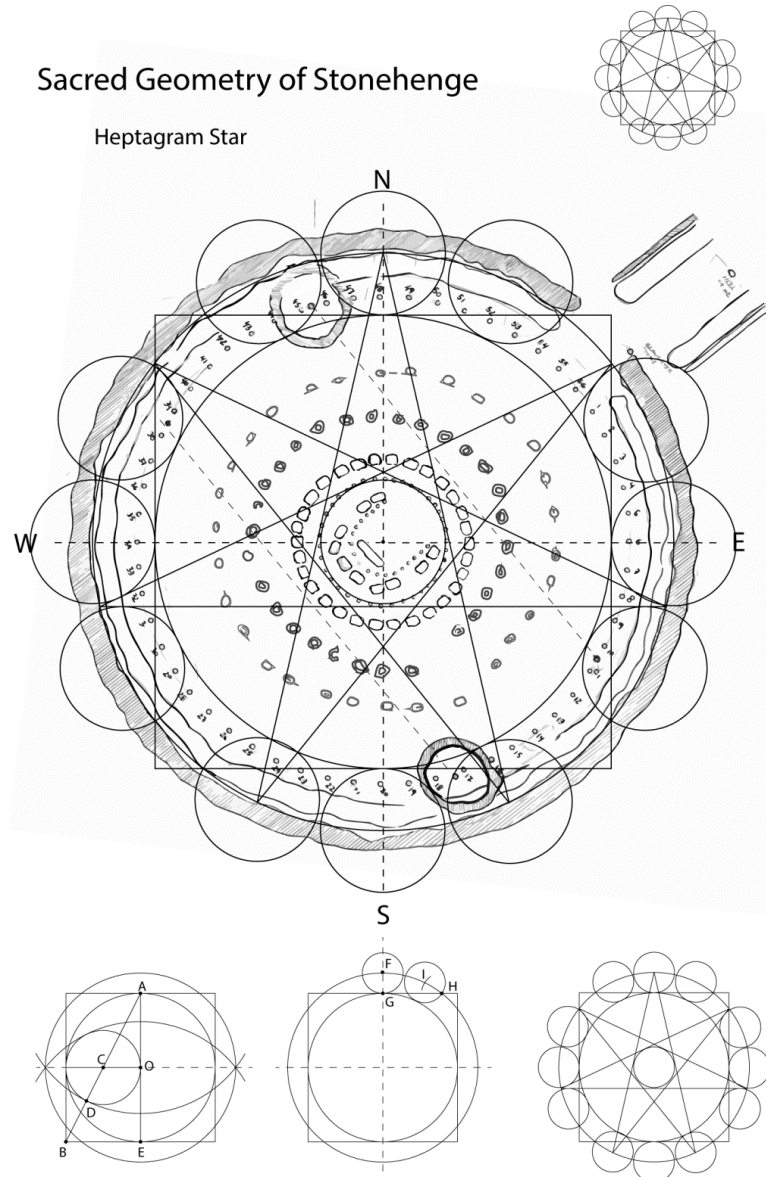


Around 1600 BC, two other stone circles composed of the Y-holes and Z-holes were added to the site. Although their purpose cannot be specified, they hold an interesting geometrical link to the rest of the monument. The disposition of the circles follows an arrangement known in Sacred Geometry, and so they correspond to cosmic harmonies of ϕ , π , and $\sqrt{5}$.

In studying the radii of these circles and their proportions to one another, we found that they hold the same sacred proportions as the planets' orbits in the Solar System. This "coincidence" does not necessarily mean that the builders knew the heliocentric system and the relationship between the semi-minor axes of the planets, but it does mean that they were aware of the sacred geometry guiding the disposition of the 7 visible planets' orbits. Our intention is not, then, to suppose a prehistoric awareness of the heliocentric solar system, but to alert the reader about the fact that the Sacred Geometry in the Solar System follows the same patterns found at Stonehenge.⁸ Those "patterns" are harmonic principles of number and geometry, and the study of astronomical cycles reveals these principles.

⁸ See our work: Sacred Geometry in the Solar System (I-III) <https://independent.academia.edu/ChristianIrigaray>
An in depth discussion on Hartmut Warm, *Signature of the Celestial Spheres*, Rudolph Steiner Press, Malta, 2010.

IV Sacred Geometry of Stonehenge



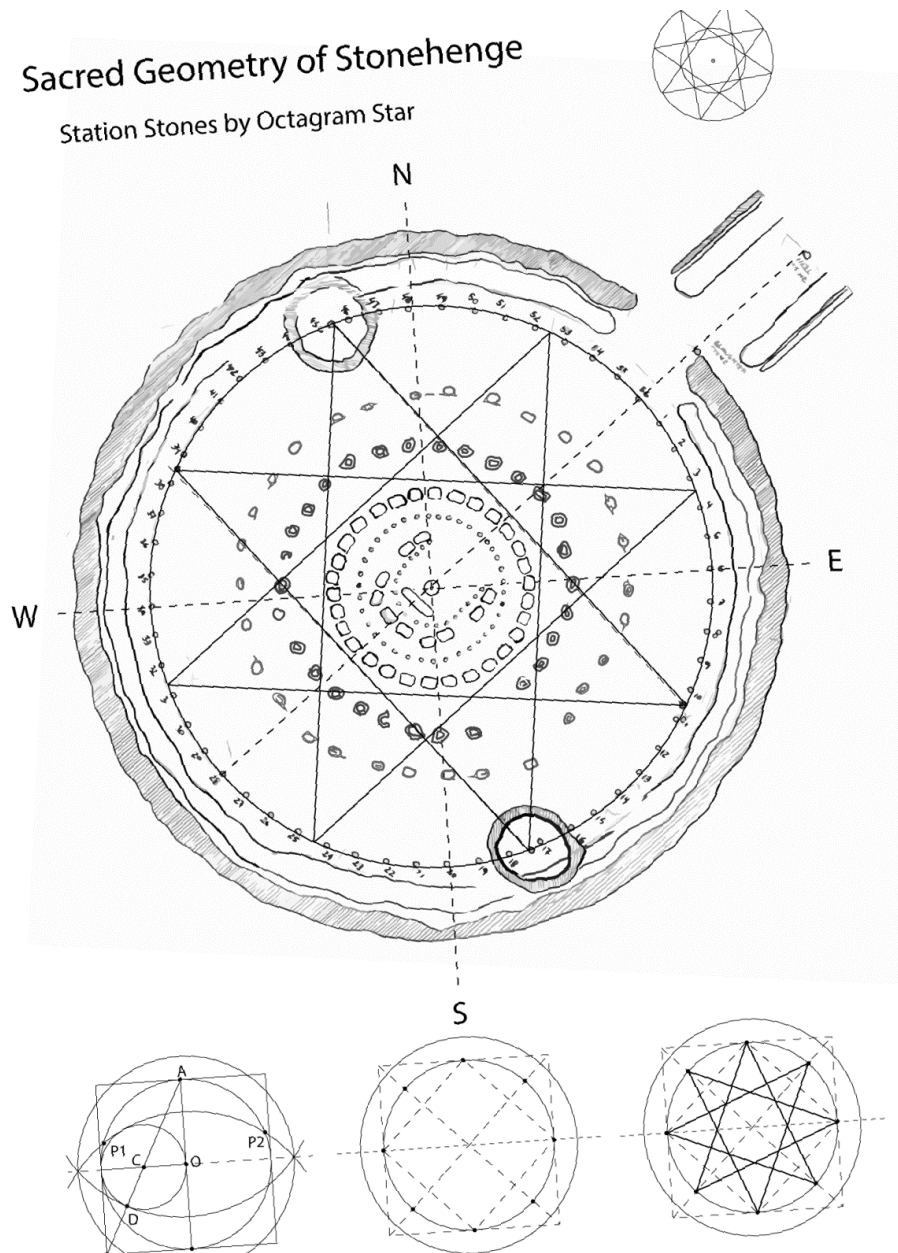
To draw the 56-fold division of the Aubrey Holes and determine the angle of the solstice sightline:

1) Draw a square and line A-B to find C. Draw a circle with radius O-C, the intersection of line A-B a point D provides the radius of the archs as A-D. With radius A-D, take E as center and draw the second arch. The crossing of the archs provides the diameter of the outer circle. The outer circle and square have the same perimeter by *Squaring the Circle*.

2) Take radius F-G and draw the smaller circle. With same radius F-G, center on point H where larger circle and square cross, and draw an arch to find point I, the center of the next circle. Repeat the process until all 12 circles are in place. The heptagram star matches the position of the circles, and $56=7 \times 8$. The central circle (same radius F-G) will be equal to the Bluestones placed on the interior of the Sarsen Stones.

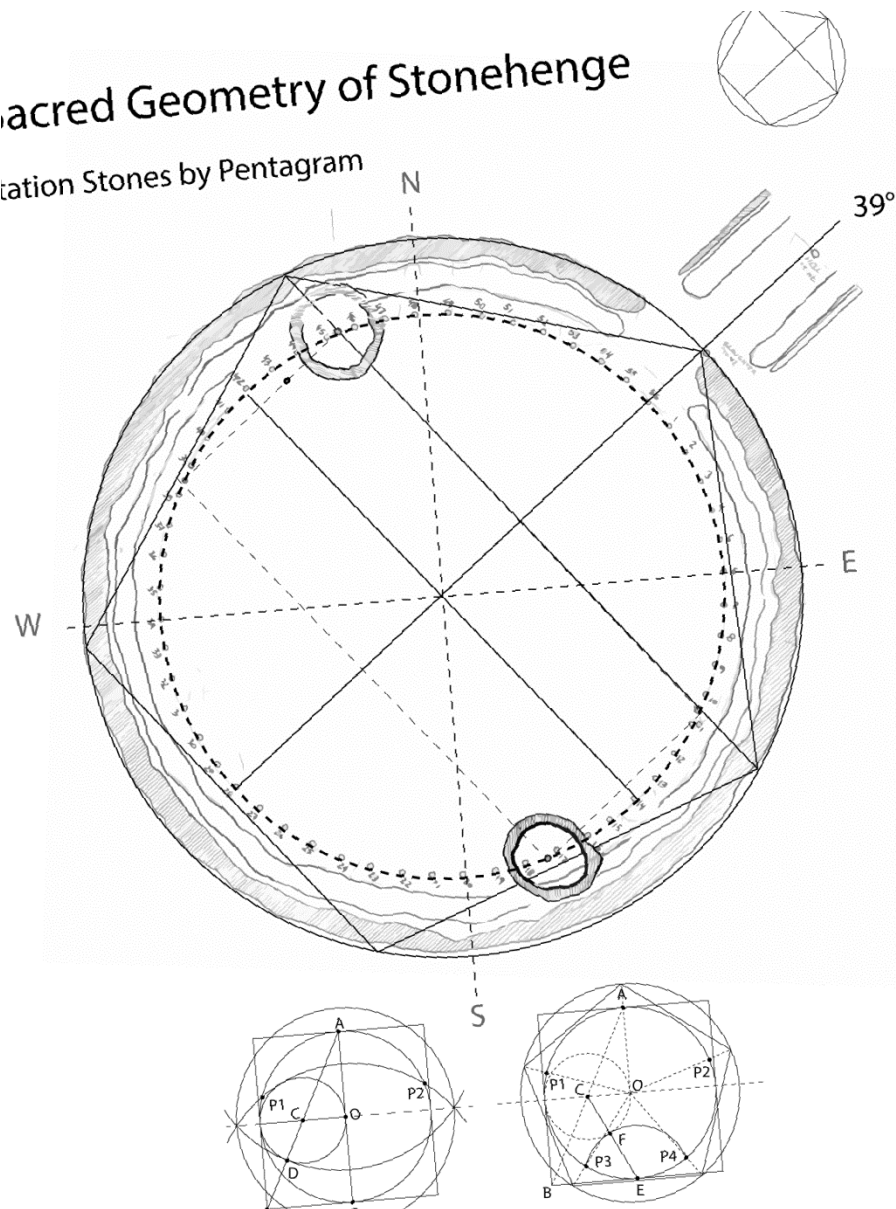
Sacred Geometry of Stonehenge

Station Stones by Octagram Star



Sacred Geometry of Stonehenge

Station Stones by Pentagon



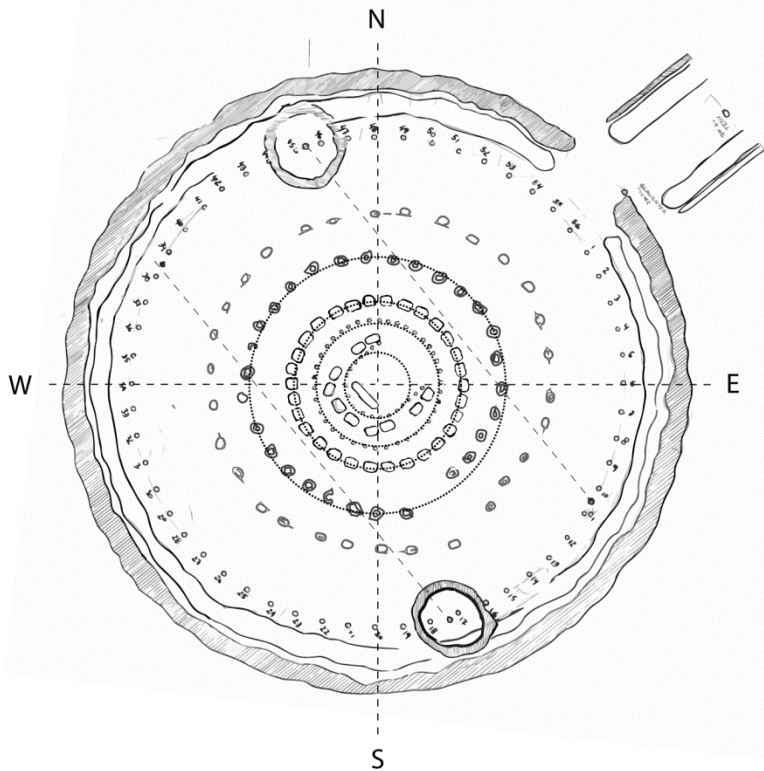
To find the position of the Station Stones, draw a pentagon contained in the larger circle, taking the angle of the heptagon (39°) as a reference.

1) Taking the same method of squaring the circle, points P1 and P2 are the intersections of the archs with radius A-D and the inner circle contained by the square.

2) To find P3 and P4, draw C-E. The intersection of line C-F with the circle with center C is point F. Take radius E-F and P3 and P4 are the intersection with the inner circle. The pentagon on the outer circle is an extension of lines O-P1, O-P2, O-P3, O-P4, and O-A.

There is another way to determine the position of the Station Stones according to the 56 Aubrey Holes. If the 39° line is hole 56, and numbering runs clockwise so that the next is 1, the Station Stones are positioned between holes 10-11, 17-18; 38-39, and 45-46. The axis they follow is a perpendicular 90° to the 39° axis which is best provided by the heptagram star in the earlier diagram.

Stonehenge Inner Solar System



Here we see the interposition of the orbits of Mars, Earth, Venus, and Mercury. The disposition of the orbits fit the Y-holes, Sarsen Stones, Bluestones, and the innermost horse-shoe configuration contained within the huge Trilithons.

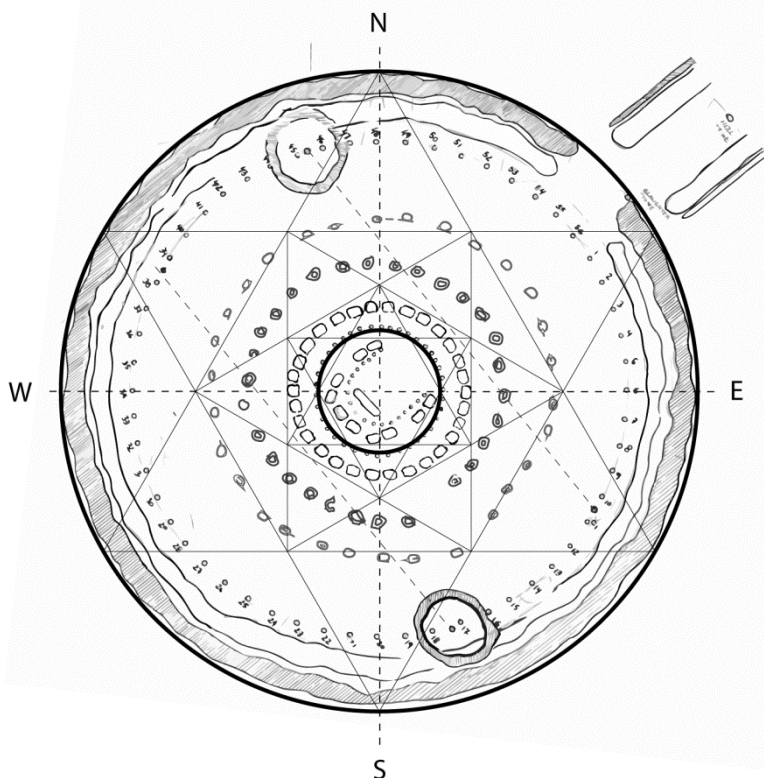
If the radius of Mercury's orbit = 1, then:

Venus: 1.909 (Bluestones)
Earth: 2.639 (Sarsen Stones)
Mars: 4.00 (Y-holes)

By geometry:

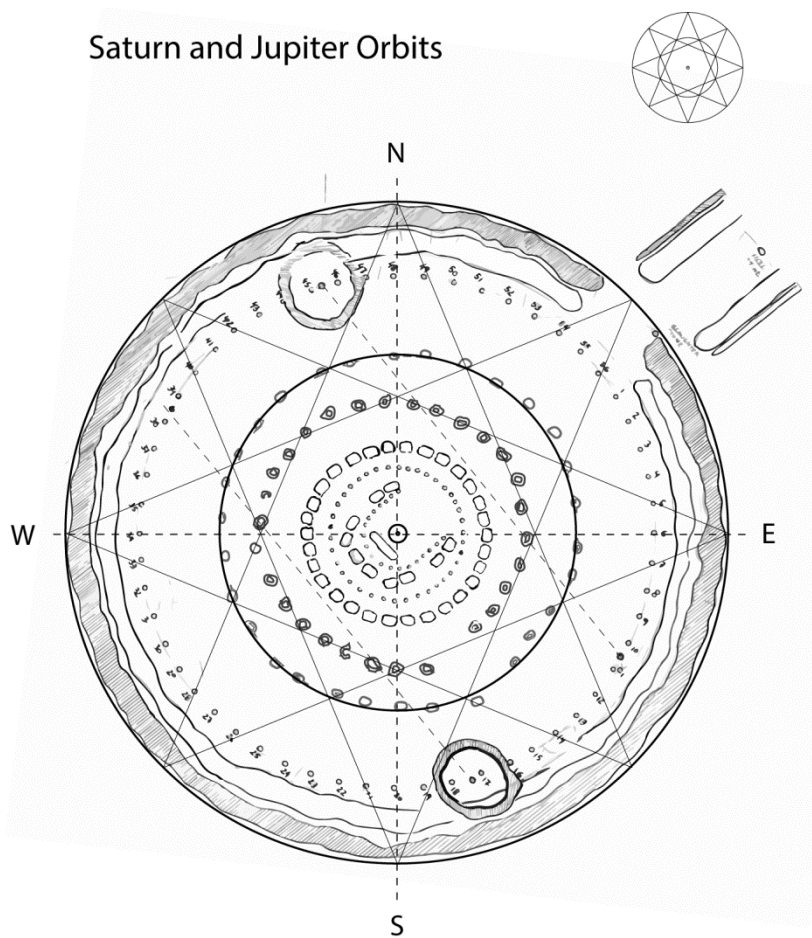
Mercury: 1
Venus: $6/\pi$ or $5/\phi^2$
Earth: $\phi^2/1$
Mars: 4

Stonehenge Jupiter:Earth

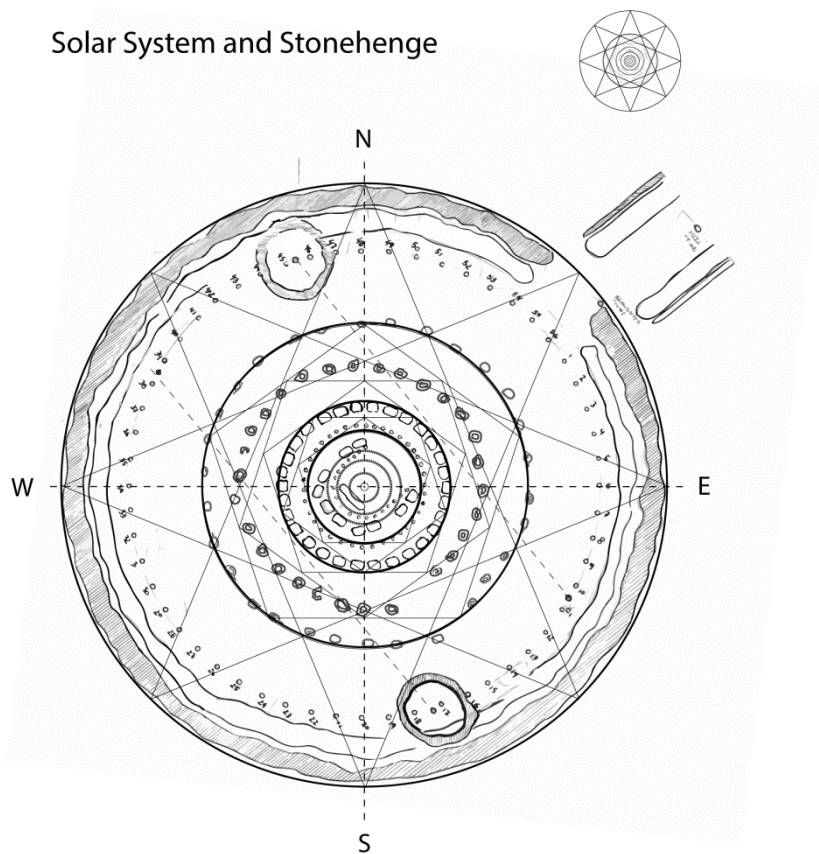


The orbit of Jupiter now matches the outermost circle of Stonehenge, and placing the Earth's orbit by the interlocking hexagram stars locates the Bluestone circle. We will notice that the proportion is basically identical to the heptagram star arrangement seen earlier, only that this geometry seems more precise and exposes the outer limit of the Sarsen Stone circle, as it is contained by the second interlocking hexagram.

Saturn and Jupiter Orbits



Solar System and Stonehenge



V

Inventing the Greek Miracle

Science does not begin with the Greeks. Rational thought does not begin with the Ionian naturalists like Thales, Anaximander or the presocratics in general. What actually appears here is materialism with a tendency towards atheism, and this is what is actually congratulated by the modernists who bear the torch of the Greek miracle. Why the Greek miracle is paraded in modern academy does not fit a criterion of “science”, but one of faith. The mainstream theory of the Greek miracle poses that Ionian Philosophy was “the first” of its kind in delivering an actual form of thinking that we can catalogue today as “scientific” or “rational”. These miracle-makers include, amongst other pre-Socratic’s:

Thales of Miletus (c.630- c.546 BC)

Anaximander of Miletus (c. 610 – 546 BC)

Anaximenes of Miletus (c. 598 – c. 528 BC)

Heraclitus of Ephesus (c. 544 – 480 BC)

Anaxagoras of Clazomenae (c. 500 – 428 BC)

Quoting from Theophrastus (c. 371 – 287 BC) we may get a clearer idea of how the Ionians arrived at their ridiculous ideas concerning the origin or primal cause of things:

Of all those who admit to a single moving principle, and whom Aristotle properly calls physicists, some consider it as limited: thus Thales, son of Examyas, a man of Miletus, and Hippon, said that water is the underlying principle of all things.

Anaximander, son of Praxiades of Miletus, who was the disciple and successor of Thales, said that the indefinite is the principle and the element of existing things; it was he, moreover, who was the first [notice the expression already] to introduce this term of ‘principles.’

Anaximenes, son of Eurystratus of Miletus, a companion of Anaximander, like his master maintains that the substratum is one and infinite, but instead of leaving it undefined, as does Anaximander, he defines it in identifying it as air.

Hippasos of Metapontion and Heraclitus of Ephesus also said there is a single principle, moving and limited, but they took it to be Fire, whence they say all things emerge or return through condensation and rarefaction: thus fire would be the only underlying principle...⁹

In our study on the subject, we became increasingly suspicious of the very light and vulgar form in which the Greeks (and particularly Anaximander) are mentioned as “the first” to discover, think, or propose something in our human history related to scientific discoveries. Anaximander, for example, is credited in our modern Greek-miracle literature as “*the first scientist*”, or as Carl Sagan puts it, as “*the first to conduct the earliest recorded scientific experiment*”.¹⁰ Anaximander is also supposed to be “the first” to have conceived a mechanical model of the cosmos. He is also “the first scientist” according to Carlo Rovelli, who dedicated an entire work on the subject named *The First Scientist, Anaximander and His Legacy*. We also hear that Anaximander was “the first” to conceive of the Sun as an object with a large mass, and so also “the first” to attempt a guess at the distance between the planets of the solar system. He is also credited as “the first” to have built a celestial sphere¹¹, and thus also credited as “the first” to have known the obliquity of the ecliptic!¹² According to Strabo,

⁹ Theophrastus, Simplicius, *Physics*, 6a-b.

¹⁰ Carl Sagan, *Cosmos*, p.143-144

¹¹ Diogenes Laertius, *Life of Anaximander*, II,2.

¹² Pliny, *Natural History* (II.8).

Anaximander is also “the first” cartographer or map-maker, and he is also credited as “the first” to accurately pinpoint the moment of equinox...

This word “science” has been abused just as much as “religion” in this Iron Age, and it has been abused by those who are ignorant of the very science involved in their congratulations as “the first to...” This appraisal cannot be awarded by a “scientific” mentality, as there is more than enough evidence of people understanding and applying the very science awarded to Ionians and Greeks in general, thousands of years before them. In prehistoric Britain, there was an evident understanding of the Draconic Cycle and the lunar standstills which precedes the era of the Ionians by 2500 years, and so far as we know, the congratulation of Thales as “the first” to predict an eclipse is a fable of Herodotus, and it was warlmy accepted by modern physicists because the Ionians were “the first” to speculate of a non-divine and natural origin of the universe. What is being praised in the Greek Miracle fable in our books on the history of science is naturalism and materialism.

The “Sacred Science” of the archaic geniuses who constructed the great megalithic sites in the world and ordered them with astronomical orientations will remain in anonymity, but it should be noted that they did not uphold a profane view of the Cosmos; rather, they were inspired by the awe of Nature’s divine logic and design. We forget too often that this awe for the Creator’s Cosmos – understood as a Living Being in the Platonic sense– was the inspiration for the great geniuses of the modern Scientific Revolution, like Kepler and Newton. For one who has done the research into the history of science, it becomes very clear that materialism and atheistic naturalism has not inspired geniuses at all.

Championing Ionian natural philosophers as “the first”, and upholding the Greeks as “the first” discoverers of astronomical science is based on an excess of enthusiasm for natural philosophy and the atheistic faith that motivates it. Not only did the Greeks not discover any “first” scientific breakthrough, but they were made by archaic and prehistoric peoples who will remain anonymous to us. But the anonymity of scientific discoveries echoes with the idea that a Great Archytect has taught Man of His existence, by leaving the traces of His Majesty in the logical patterns of natural phenomena.

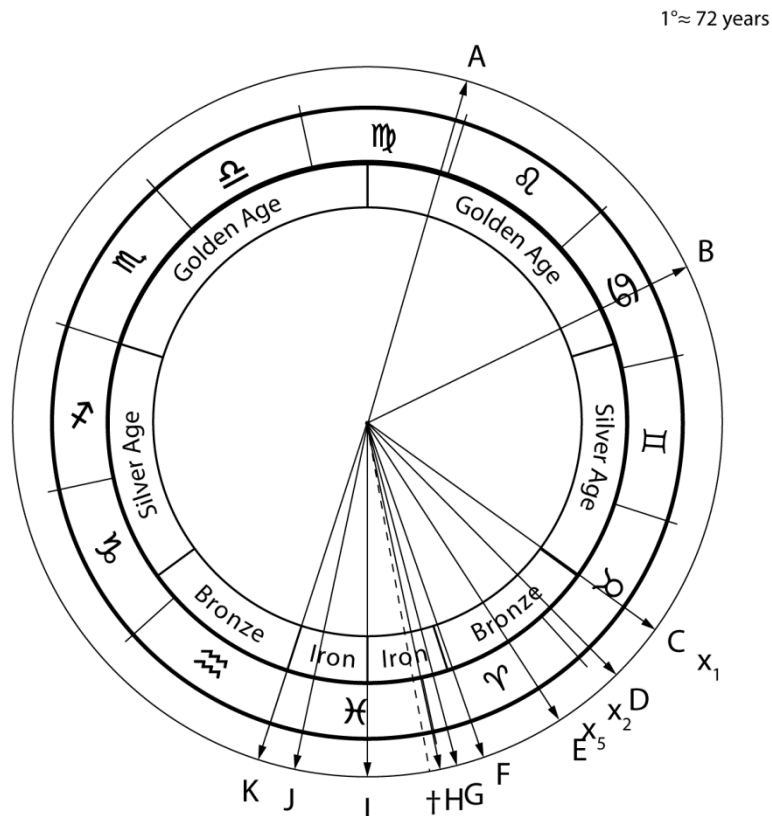
The “problem” for the evolutionists who propose a “pre-logic” mentality in archaic Man is that prehistoric and ancient geniuses were not materialists or naturalists, but people who sought to link natural and spiritual science into a higher understanding of reality. Without leaving ancient Greece, Socrates and Plato taught the study of astronomy from an initatory and sacred persepective, so did Pythagoras, as did the Pharaonic egyptians and Mesopotamians long before them. There was never a “pre-logical” state of consciousness in archaic Man, for the architects of Giza, Sacsayhuaman, Avebury, or Gjigantia in Malta had a high understanding of astronomical cylces, decyphered by a logical mentality fit and harmonized with the Logos in the Cosmos.

It is interesting to notice, for example, that the modernists constrained by Iron Age paradigms have not received very well the reality that prehistoric peoples were as ingenious as they were. A good example is the way in which Richard Atkinson responded to the studies of Gerald Hawkins on the astronomy of Stonehenge stating that its builders were nothing but “howling barbarians” incapable of understanding astronomical cycles. The respnse given by Giulio Magli to such prejudice is best illustrated in his own words:

I do not know whether the builders of Stonehenge were “barbarians” or if they “howled.” (When Italy won the 1982 Football World Cup, I painted my face blue and howled. If that makes me a barbarian in the eyes of some, then so be it.) In any case, Hawkins irrefutably attracted attention to the fact that the celestial cycles held great interest for the builders of Stonehenge. The important point is that Hawkin’s work, while controversial and bitterly criticized, sparkes a rebirth of interest that evolved into what we call today by the somewhat ungraceful –at least in my view– term of archeoastronomy.¹³

¹³ Magli, Giulio, *Mysteries and Discoveries in Archeoastronomy*, New York, Praxis Publ., 2009, pp.34.

A Precessional History of Astronomical Knowledge



- A) Gobekli Tepe 11,000-10,000 BC
-Possible astronomical alignments.
- B) First Posts at Stonehenge
-East-West Equinox axis (c.7500 BC)
- C) Stonehenge I (3100 BC)
x₁ - Mahabharata Eclipse (April, 20, 3105 BC)
- D) Stonehenge II (2500 BC)
x₂ - Eclipse of Agade, (April 25, 2035 BC)
x₃ - Eclipse of Sharkalisharri (March 27, 1959 BC)
x₄ - Lunar Eclipse of Ur II Simanu (July 31, 1835 BC)
x₅ - Adaru Lunar Eclipse (April 19, 1793)
- E) Stonehenge III (1600 BC)
- F) Thales of Miletus (c.630-c.546 BC)
- G) Aristarchus of Samos (c.310-c.230 BC)
- H) Hipparchus of Nicaea (c.190-120 BC)
- I) Mayan Dresden Codex Eclipse:
GMT = Nov. 8, 755 AD (LC: 9.16.4.10.8)
The Dresden Codex runs backwards 11960 days (69 eclipses)
- J) Kepler and Newton (c.1600 AD)
- K) Current times 2020 AD