Megalithiomania 2015: GLASTONBURY TOWN HALL

What were the Ancients Up To?

Monuments to the Lords of Time

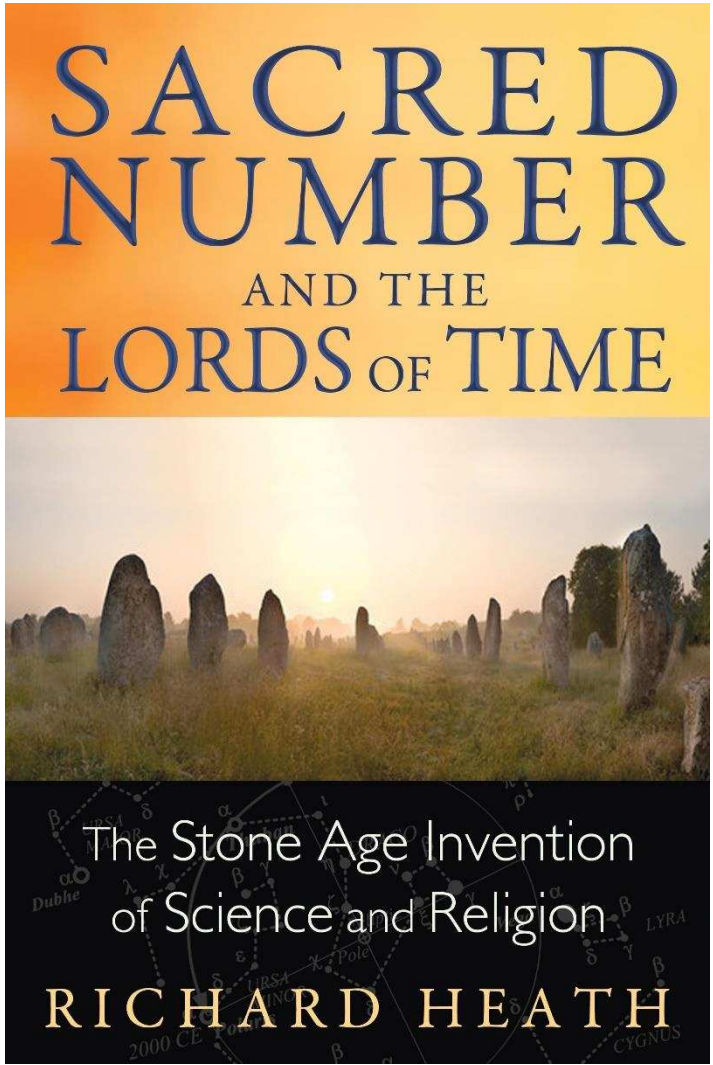
Astronomical Time as the Subject of Megalithic Structures and How to See This

by Richard Heath.info

MegalithicScience.org

John Michell Memorial Lecture

2015



the origins of **ancient metrology**

Metrology is applied mathematics

John Michell and John Neal largely had to work backwards in time, finding historical metrology a distorted subset of a more ancient metrological system …

as Greek theory and empires had scattered its parts, like the body of Osiris

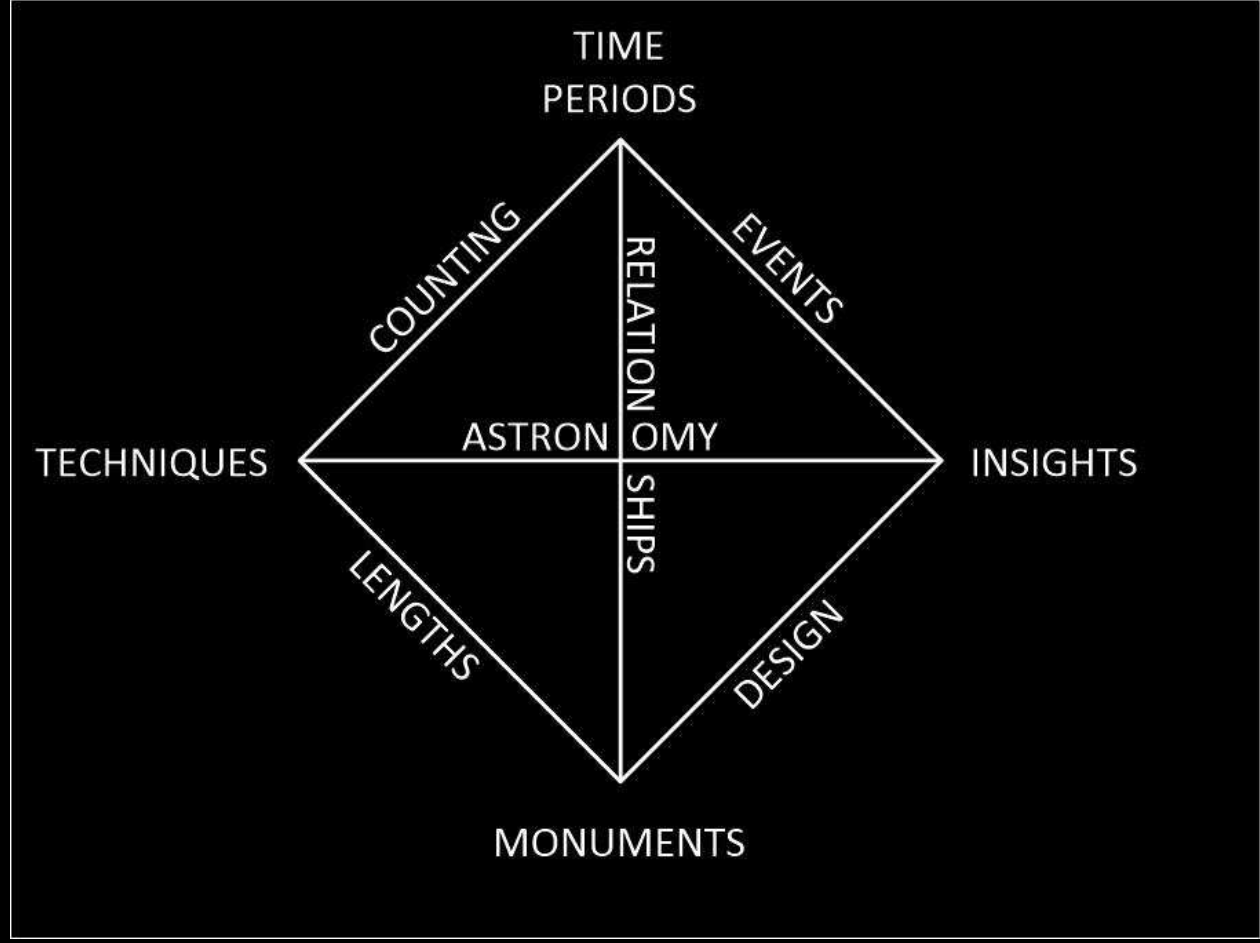
before the ancient system, megalithic metrology and geometry had revealed the heavens to be a highly structured phenomenon

Techniques and Insights

My own work has been one of ***reconstruction,***

of the Techniques and Insights available to megalithic astronomers.

These can then be found as operating within monuments



By entering *the mind and possibilities of the megalithic*, monuments "come alive", rather than being "dumbed down".

In the Stone Age, almost everything was a mystery …

Counting

One can see *a single initial technique* which connects the megalithic to the late Stone Age

and which proceeded it by tens of thousands of years.

Counting days of *lunar visibility* appears widely practiced in the Stone Age, and this could have moved, within France, to become the megalithic in Brittany and in particular,

Carnac …

Stone Age Counting

We are familiar with exquisite **cave paintings** and …

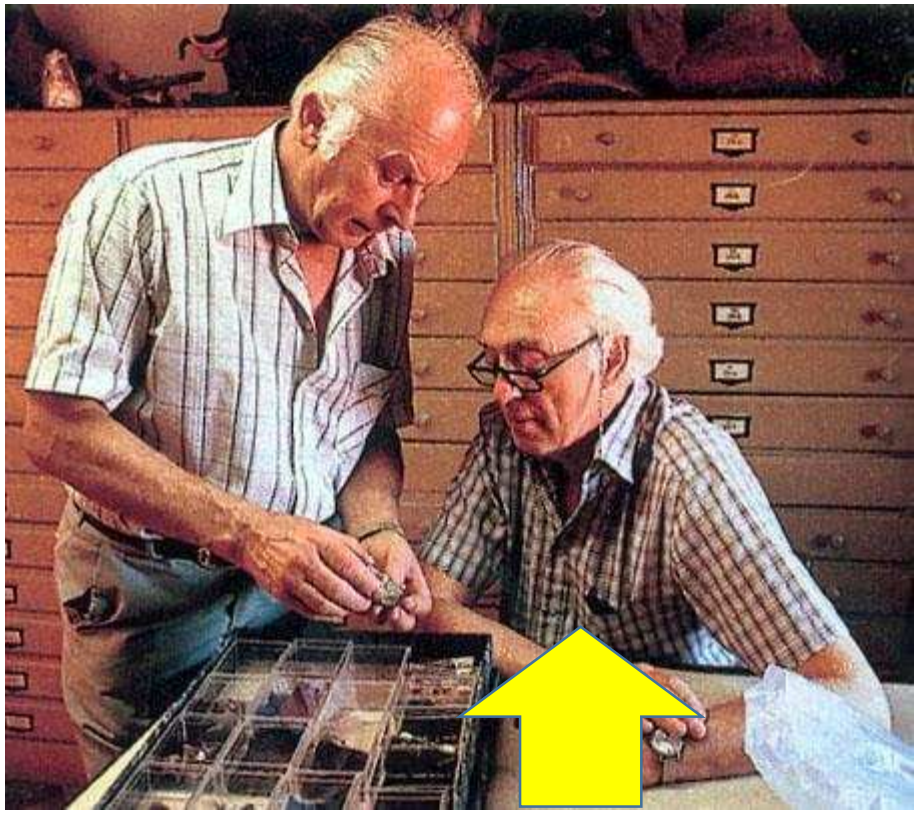
less familiar with the fact that humans have been **using bones** to make **repetitive marks** similar to counts or even numbers.

This could indicate a **pre-arithmetic numeracy**

and an interest in the **properties of numbers**.

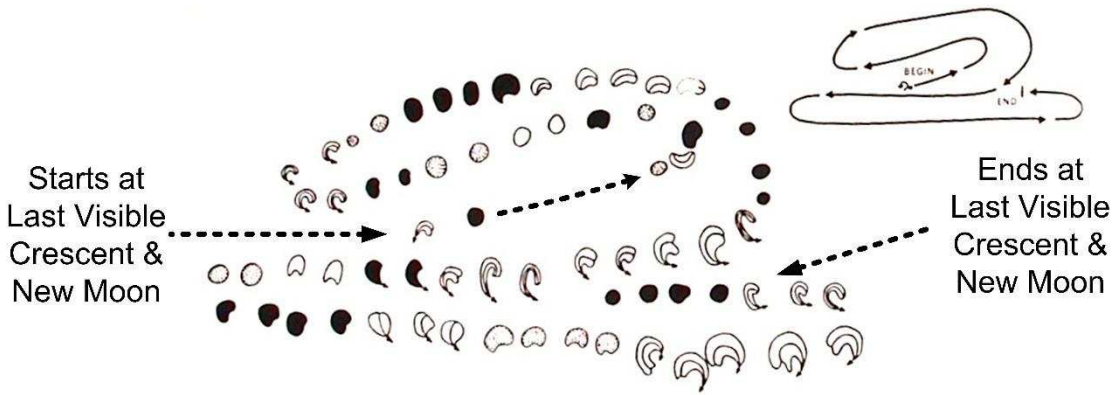
Stone Age Counting

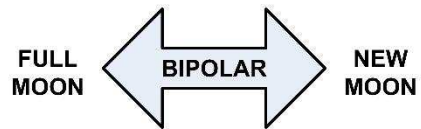
L'Abri Blanchard Tally Bone 30,000 BP



Alexander Marshak

Hero or Fantasist ?

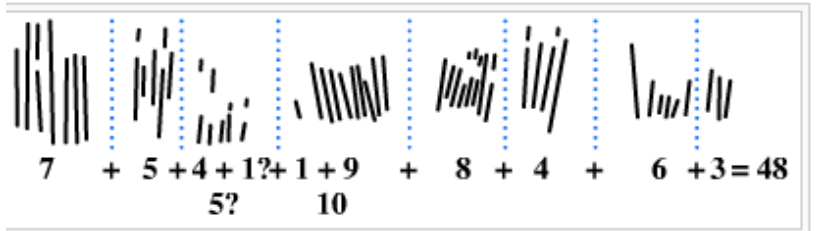




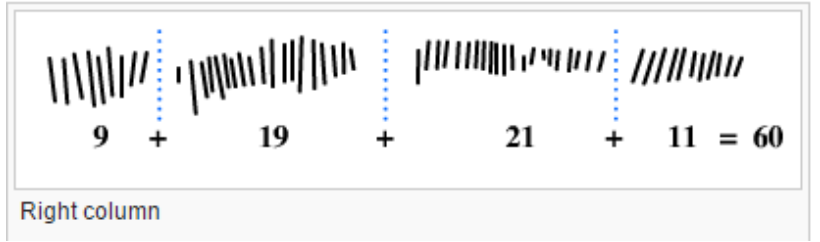
Stone Age Counting

Ishango Bone 20,000 BP

Left column



Center column

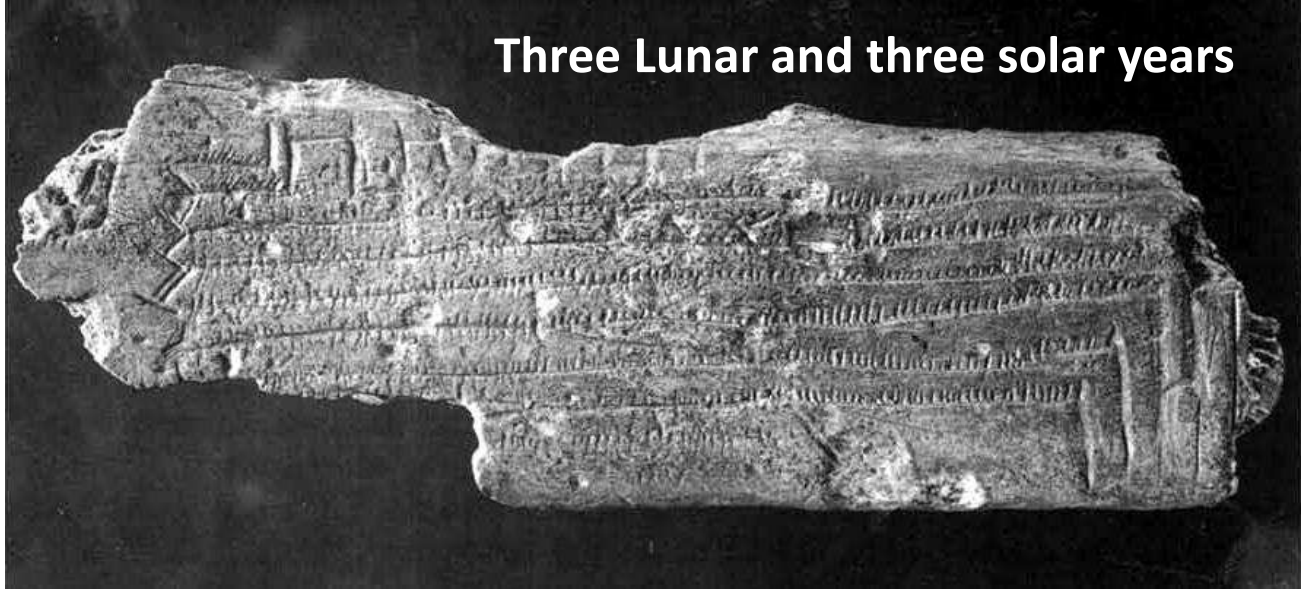


Right column

The Ishango Bone: A bone tool, dated to the Upper Paleolithic era and now believed to be more than 20,000 years old. It has been interpreted as being a tally stick but also as a medium for a stone age awareness of prime numbers. It was found in 1960 by Jean de Heinzelin de Braucourt while exploring what was then the Belgian Congo.[Wikipedia]

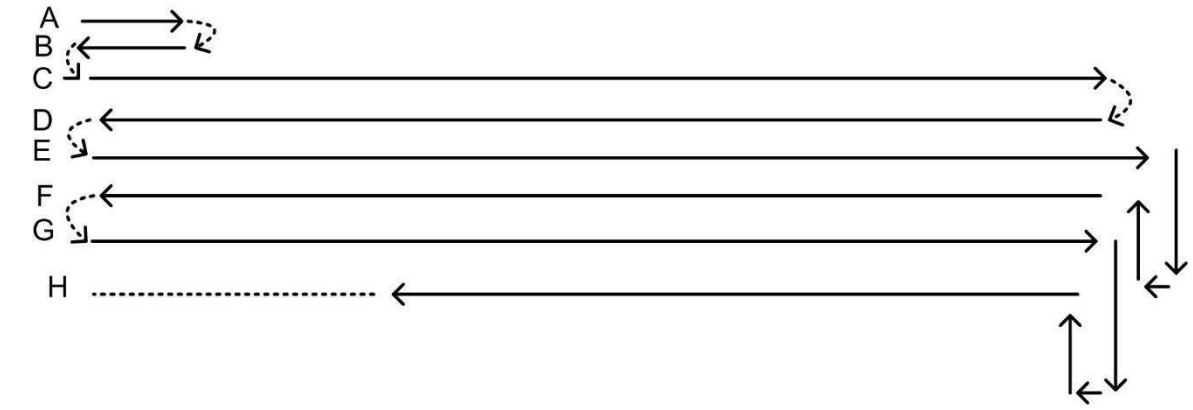
Stone Age Counting

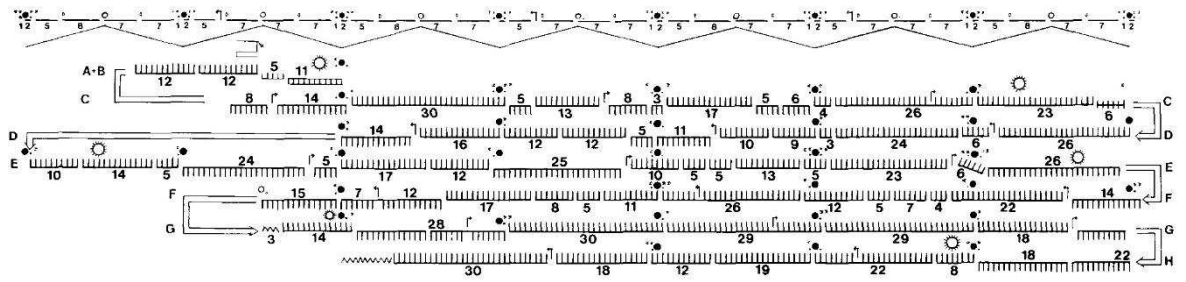
Tais Plaque Tally Bone 10,000 BC



Marshack hypothesized that notches on the bone plaque from the Grotte de Thaïs in southern France were

Structured in subsets of 29-32 notches, thus suggesting that they were used to mark the duration between two lunar months.





“The Tai composition suggests the presence of a non-arithmetical observational lunar 'year' in Europe at the end of the last Ice Age, c. 10,000 BC, with … solsticial observation and therefore a lunar/solar year.

The presence of such a year structure in the … Palaeolithic would argue for an indigenous European observational astronomy in the [megalithic] … that was not derived from the astronomies of the classic Mediterranean agricultural societies.

The origin of this West European megalithic astronomy has been one of the principal problems confronting the new discipline of archaeoastronomy.”

Analysis of the Tai composition suggests the presence of a non-arithmetical observational lunar 'year' in Europe at the end of the last Ice Age, c. 10,000 BC, with the probability that there was also solstitial observation and therefore a lunar/solar year.

The presence of such a year structure in the terminal Palaeolithic would argue for

in the Neolithic and Bronze Age that was not derived, either in structure or mode from the astronomies of the classic Mediterranean agricultural societies.

Megalithic Counting

This interest in time periods caused an innovation:

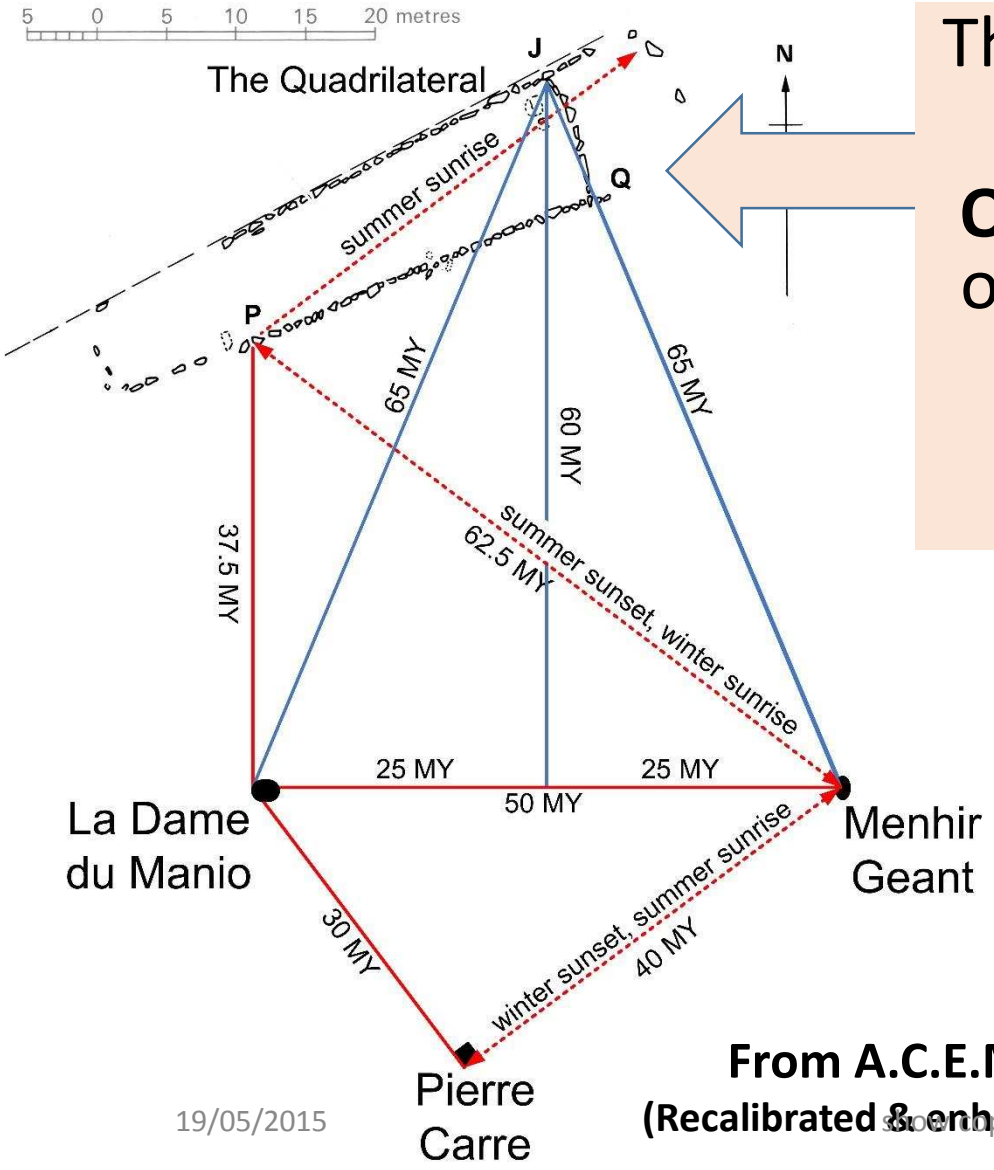
Counting using fixed distances to represent a single day

This gave birth to metrology since a number of marks become an exact length, then comparable.

The ancient metrology, of the megalithic and ancient world, is clearly descended from the counting lengths of time, in inches, feet, megalithic yards and cubits.

This is demonstrated at Le Manio, near Carnac …

Stone Age Counting



The sun and moon differ by

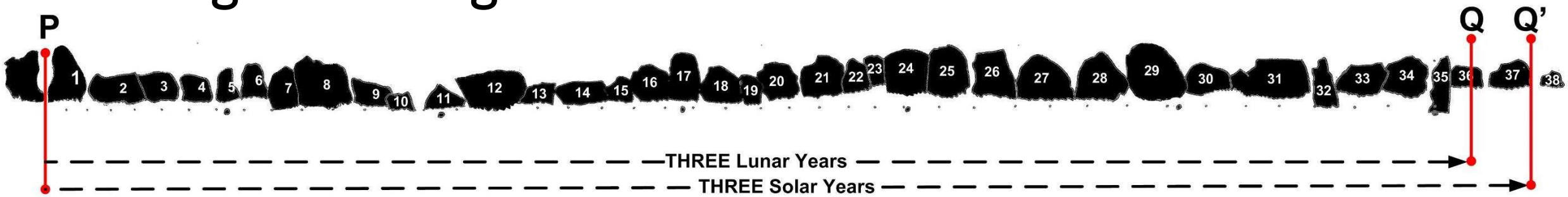
ONE lunar month over **THREE** years

36 to 37 lunar months

From A.C.E.M

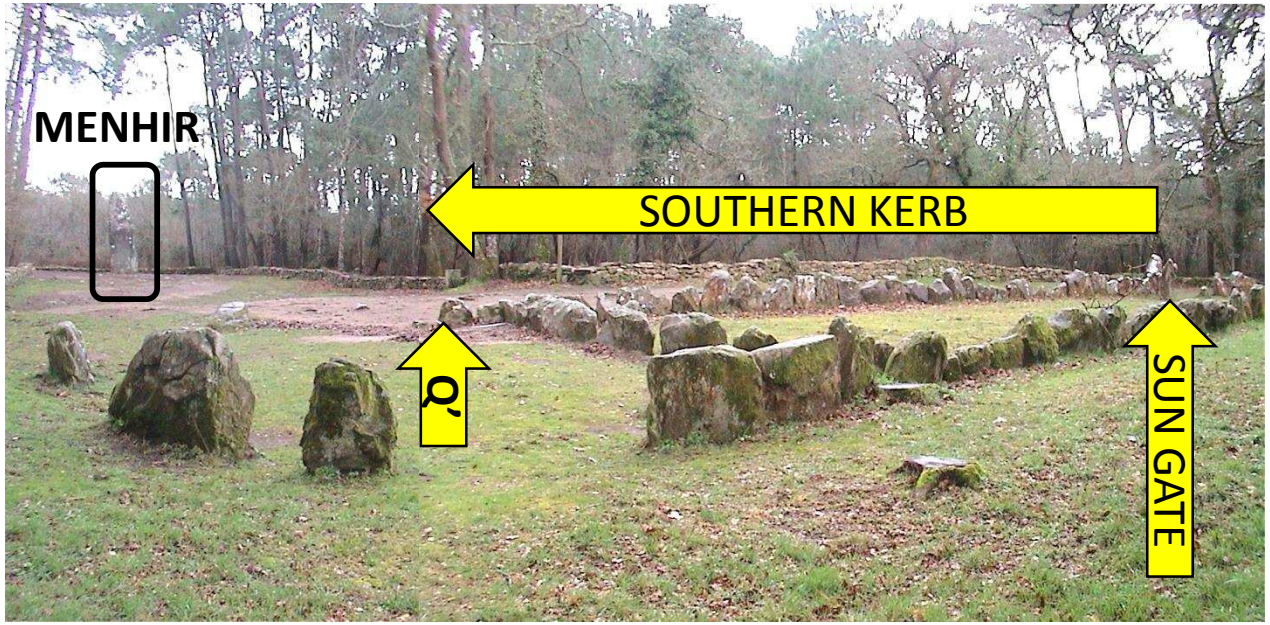
(Recalibrated & enhanced)

Stone Age Counting



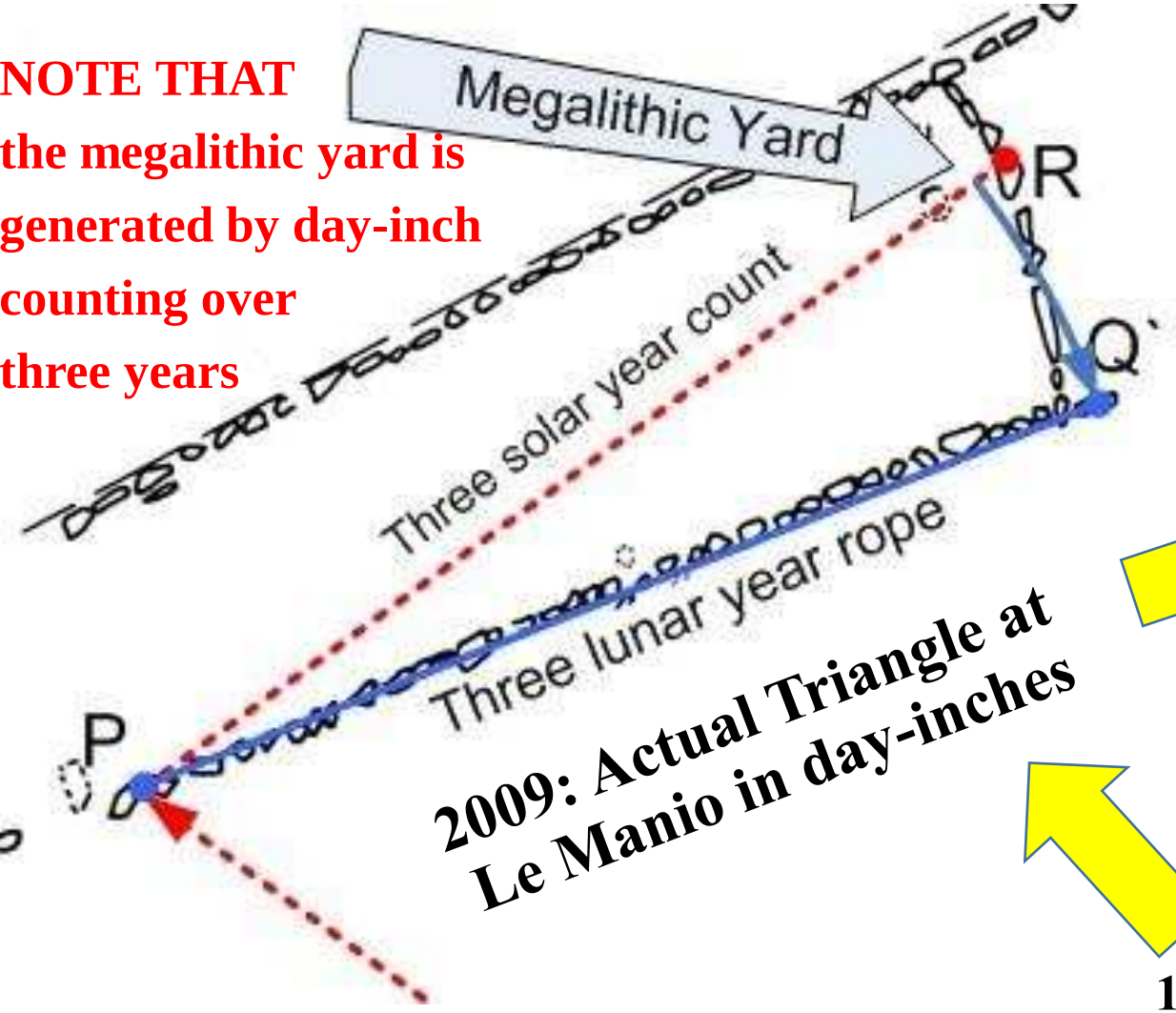
Le Manio Stone Kerb 4,000 BC

The Quadrilateral displays a kerb with 37 major stones, whose limit from P (sun gate) to Q' is three solar years in day-inches.

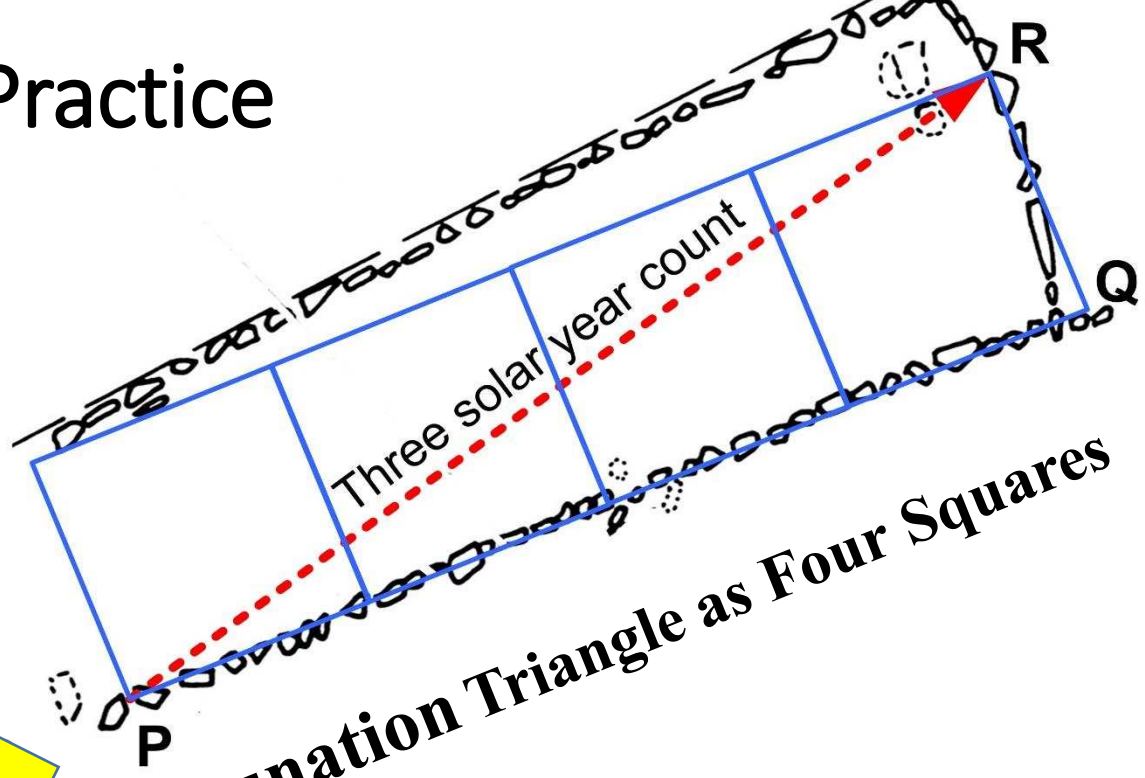


Stone Age Counting: Theory into Practice

NOTE THAT
the megalithic yard is generated by day-inch counting over three years



2009: Actual Triangle at Le Manio in day-inches



Lunation Triangle as Four Squares

1992: Robin Heath Proposed "Lunation Triangle" in months per megalithic yard

An excess of exactly one English foot

Multiple Squares

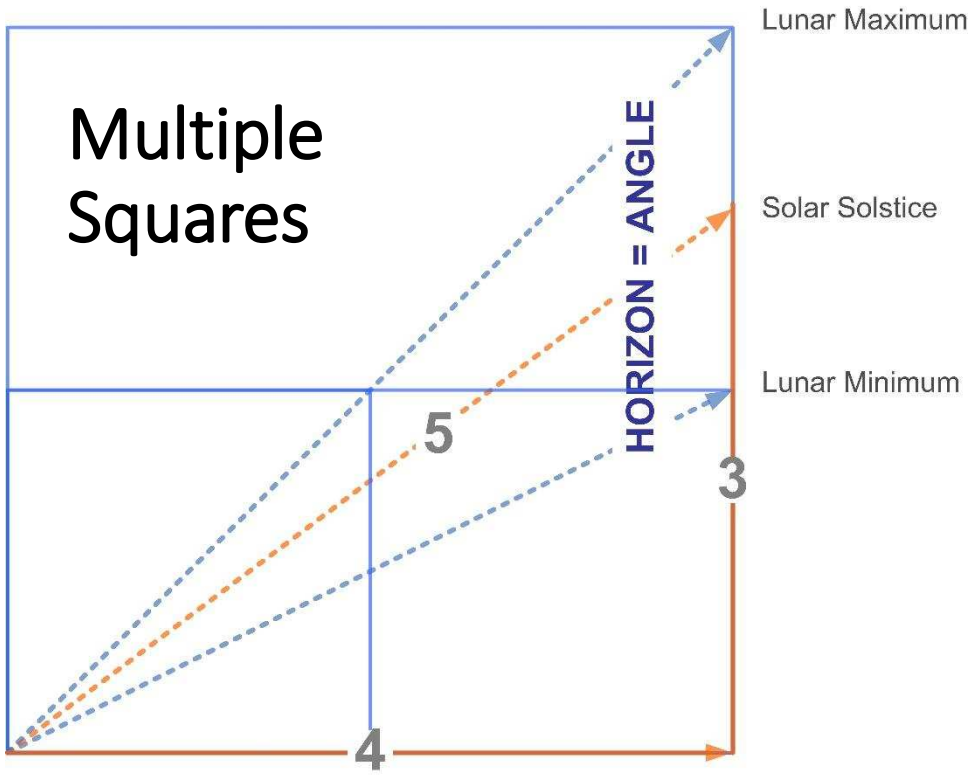
The work of Howard Crowhurst has demonstrated that alignments to the sun and moon at the latitude of Carnac closely approximate the near miraculous properties of rectangles made out of squares

The discovery of a lunation triangle at Le Manio by Robin Heath in 2009 blended with my ideas about day-inch counting to see it as a four square rectangle,

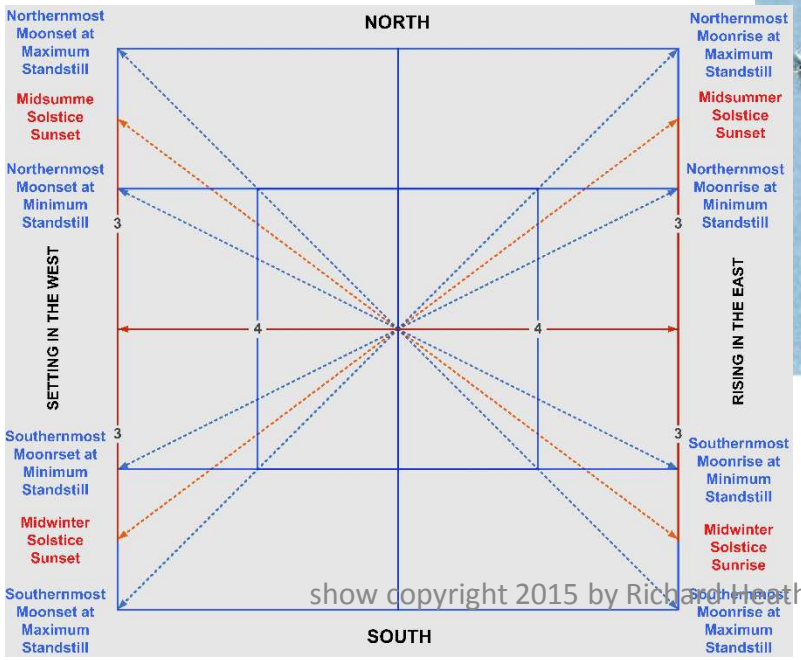
adding to the fact that a three-square rectangle relates eclipses to the solar and 13-month years.

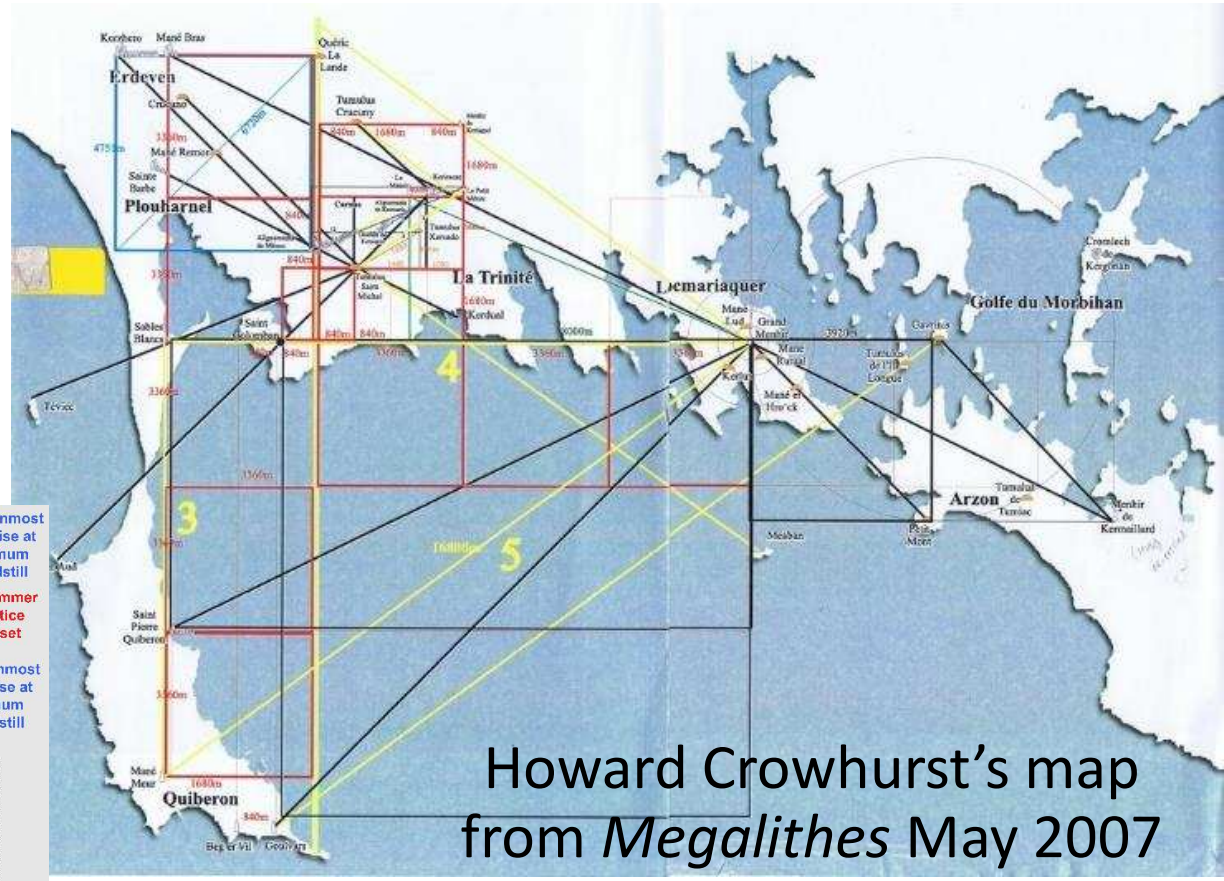
This added TIME to SPACE as these rectangles dove-tailed into those of alignments as Carnac …

Multiple Squares



It was very easy at Carnac to align to the extremes of Sun and Moon

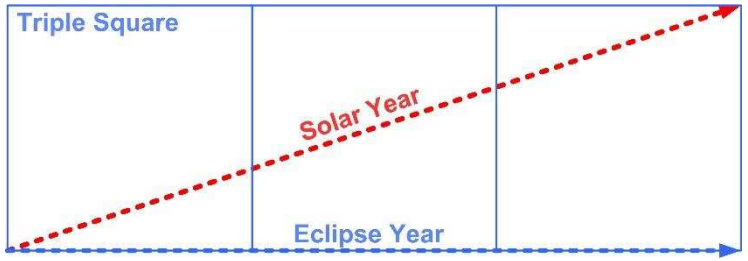


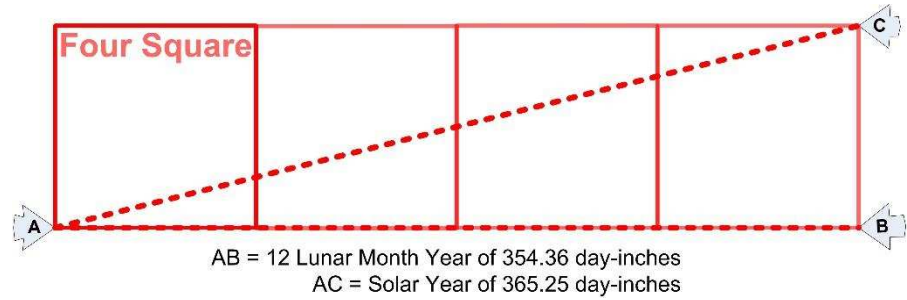


Howard Crowhurst's map from *Megalithes* May 2007

at every site, over many miles, to form a network

Multiple Squares

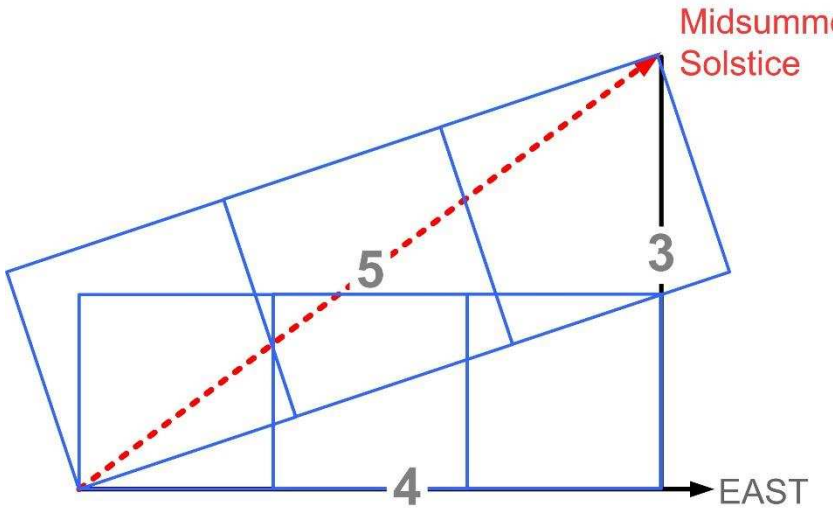


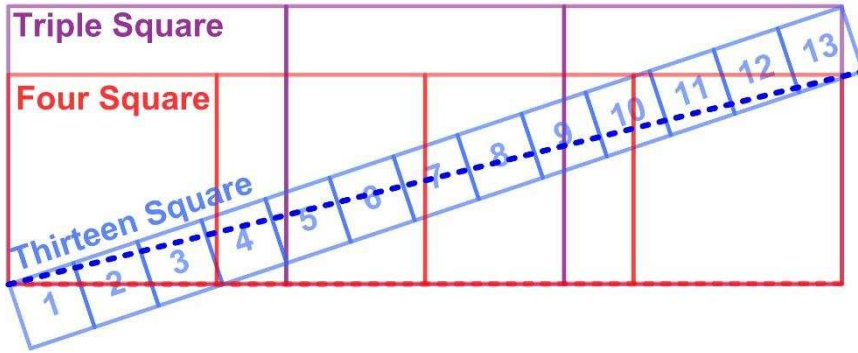


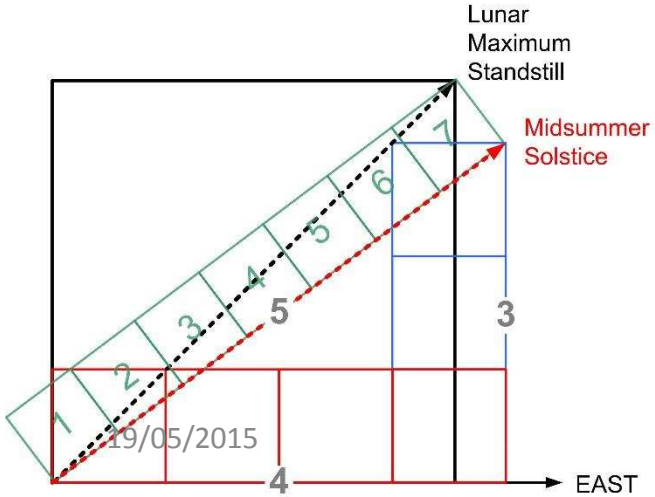
AB = 12 Lunar Month Year of 354.36 day-inches
AC = Solar Year of 365.25 day-inches

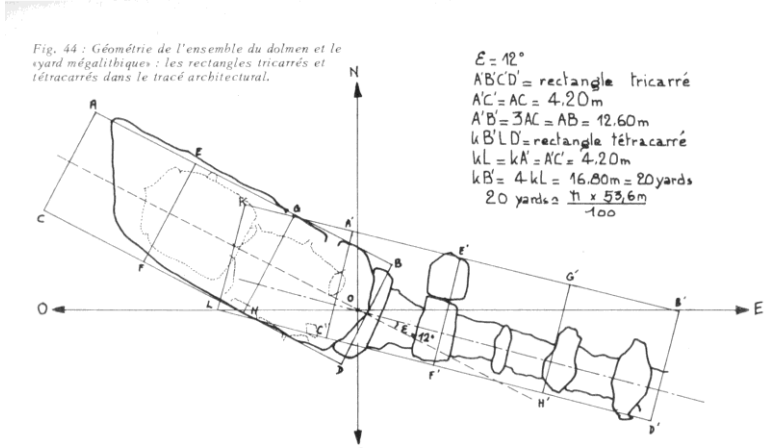
These can form a geometrical algebra, where

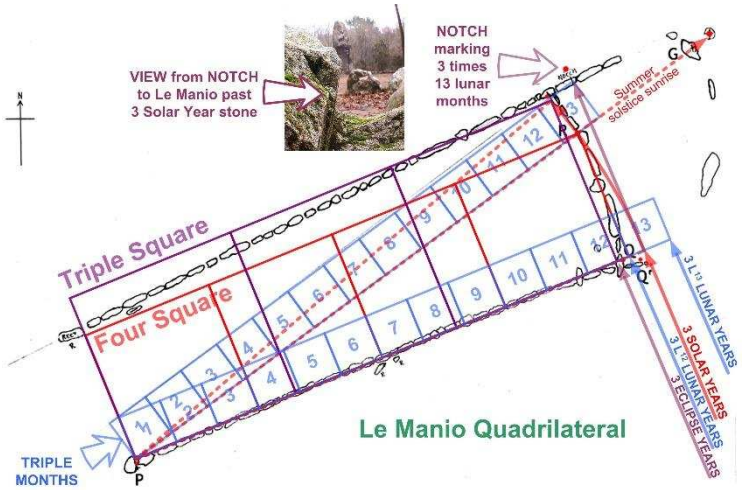
Alignments interact with Time Periods





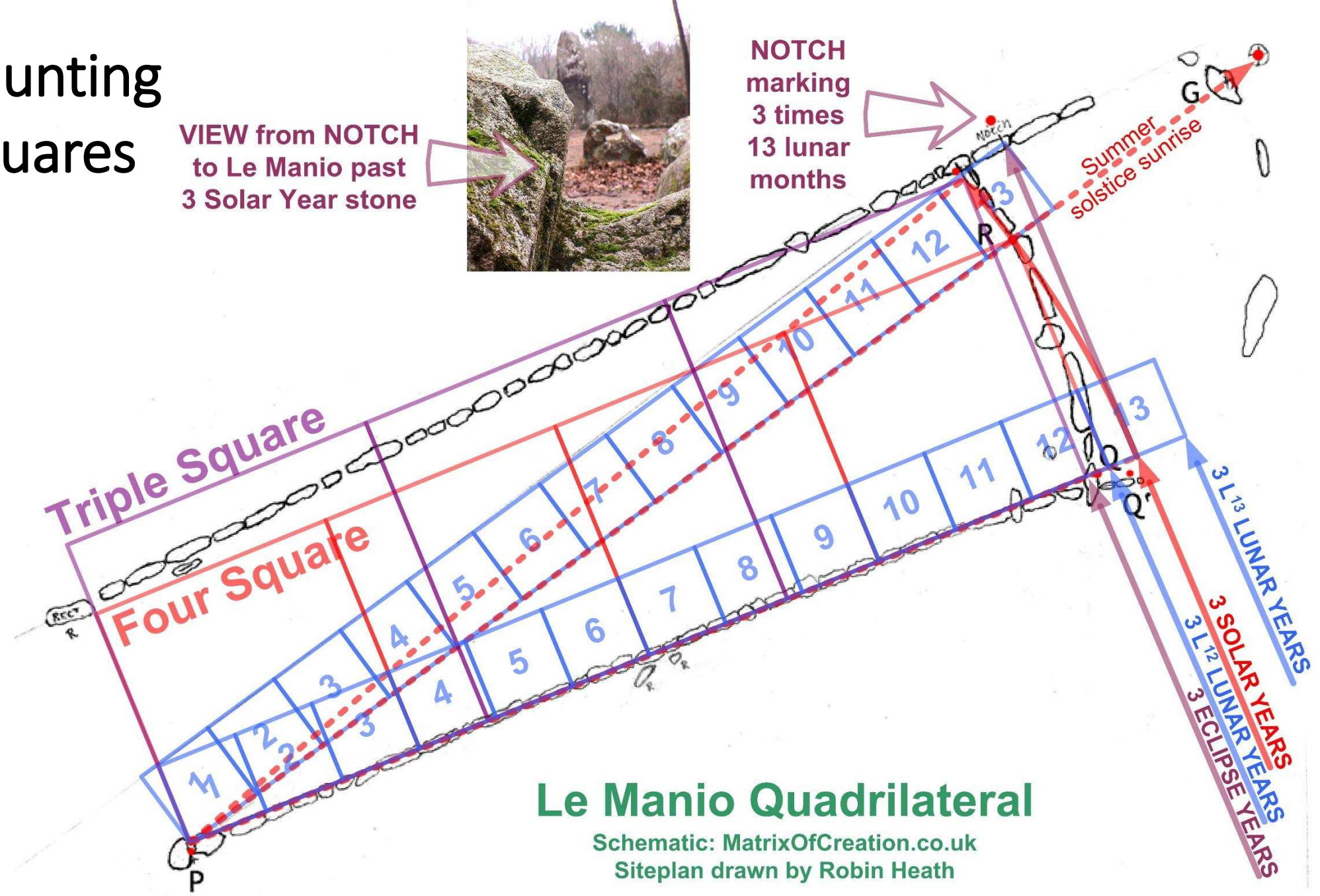




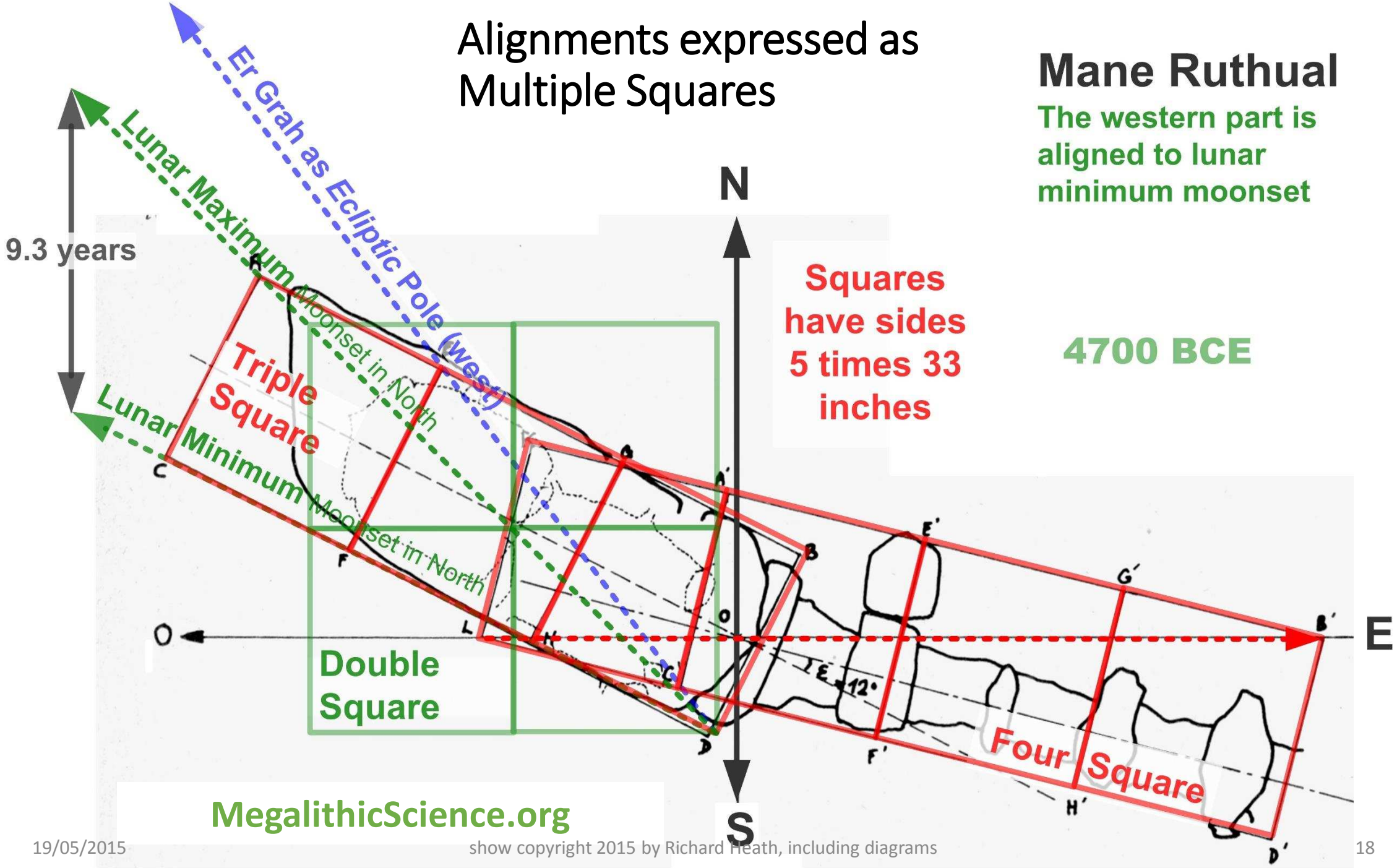


Stone Age Counting + Multiple Squares

One Monument can have Multiple Meanings



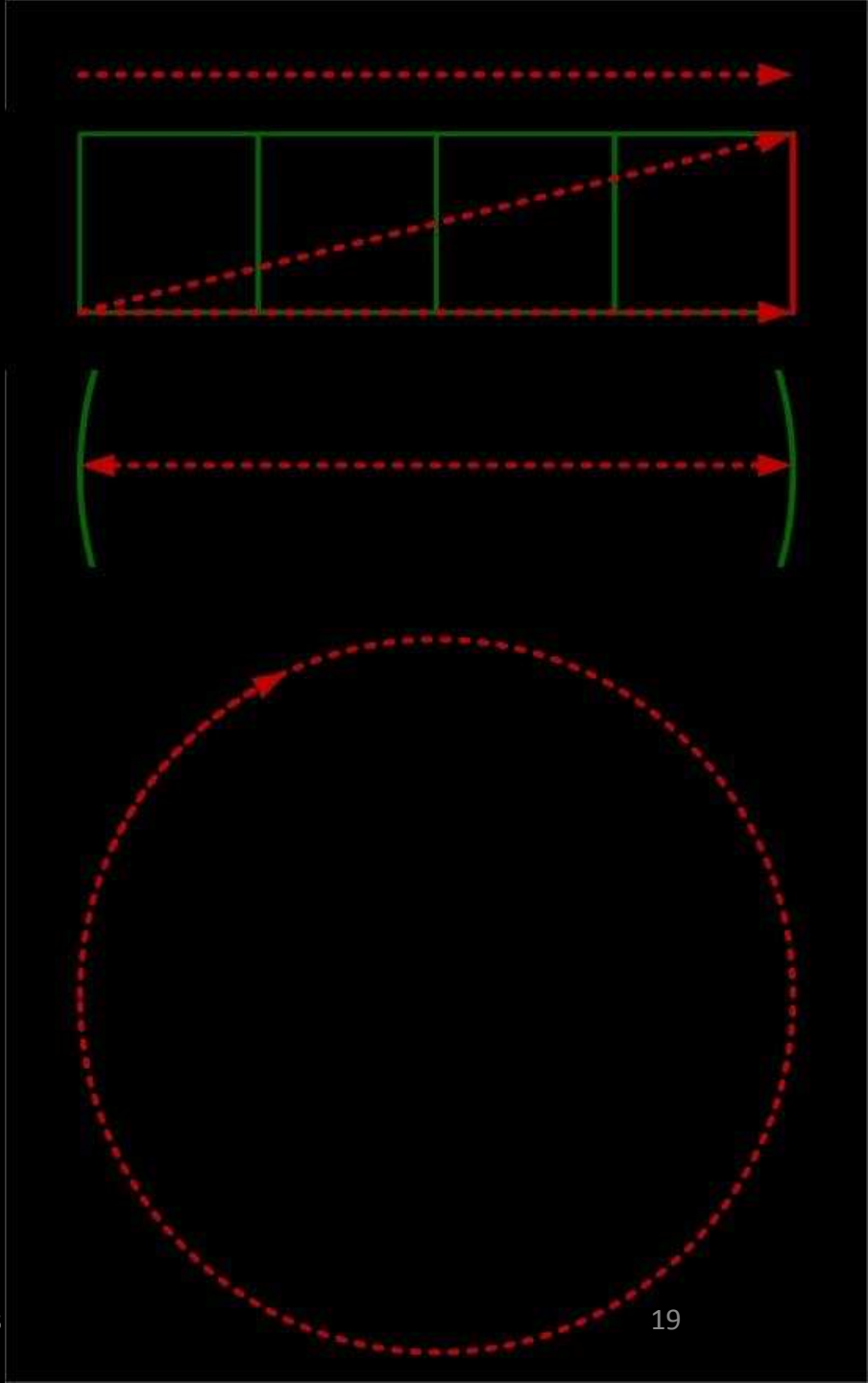
Alignments expressed as Multiple Squares



Geometry Transforms Counting

The regular nature of a count is from start to end, but other formats could be made of a counts length.

1. Forming a Triangle, to compare counts and reveal a unique angle, an invariant ratio between counts.
2. Using half a count and counting backwards and forwards, notably the diameter of a circle.
3. Bending the count to form a circle, square or other shape as a counted perimeter.

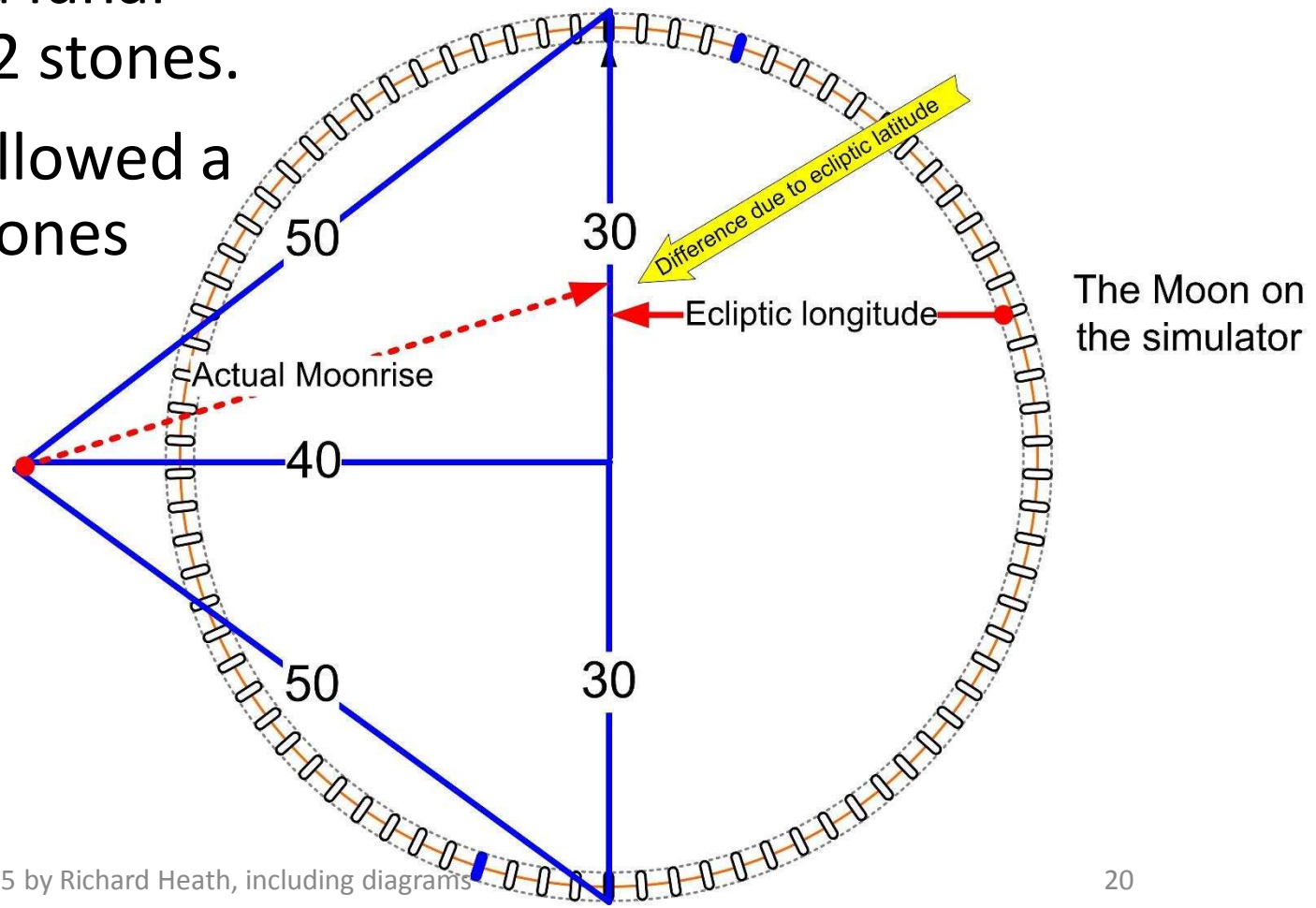


Counting to Simulate the Moon

A cyclic count can simulate the movement of the sun and moon, around the earth.

At Le Manio, Robin and I detected a lunar simulation around a circle having 82 stones.

The moons orbit, of 27 2/3rd days allowed a moon marker to be moved three stones because 82 = 3 times 27 2/3rd



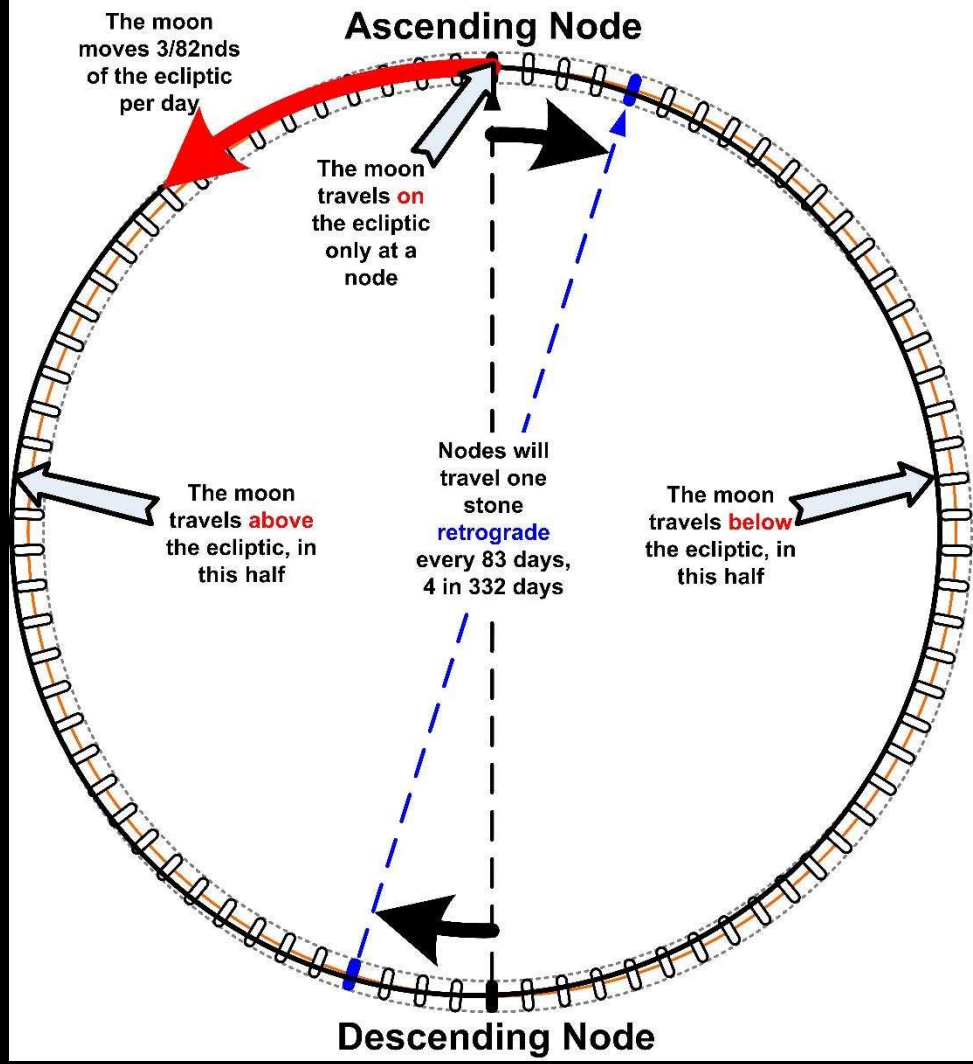
UNDERSTANDING ECLIPSES

The Moon's path crosses the Sun's at two nodal points, each responsible for eclipses, and in between rides above or below the sun's path.

Finding the Nodes becomes easier when simulating the Moon because the stars behind show where the moon is not on the sun's path.

From this it would be seen that

1. the Moon's eclipse nodes move slowly backwards relative to the sun and moon and that
2. Eclipses occur when the sun stands on a Node, every eclipse season, separated by 173.3 days.

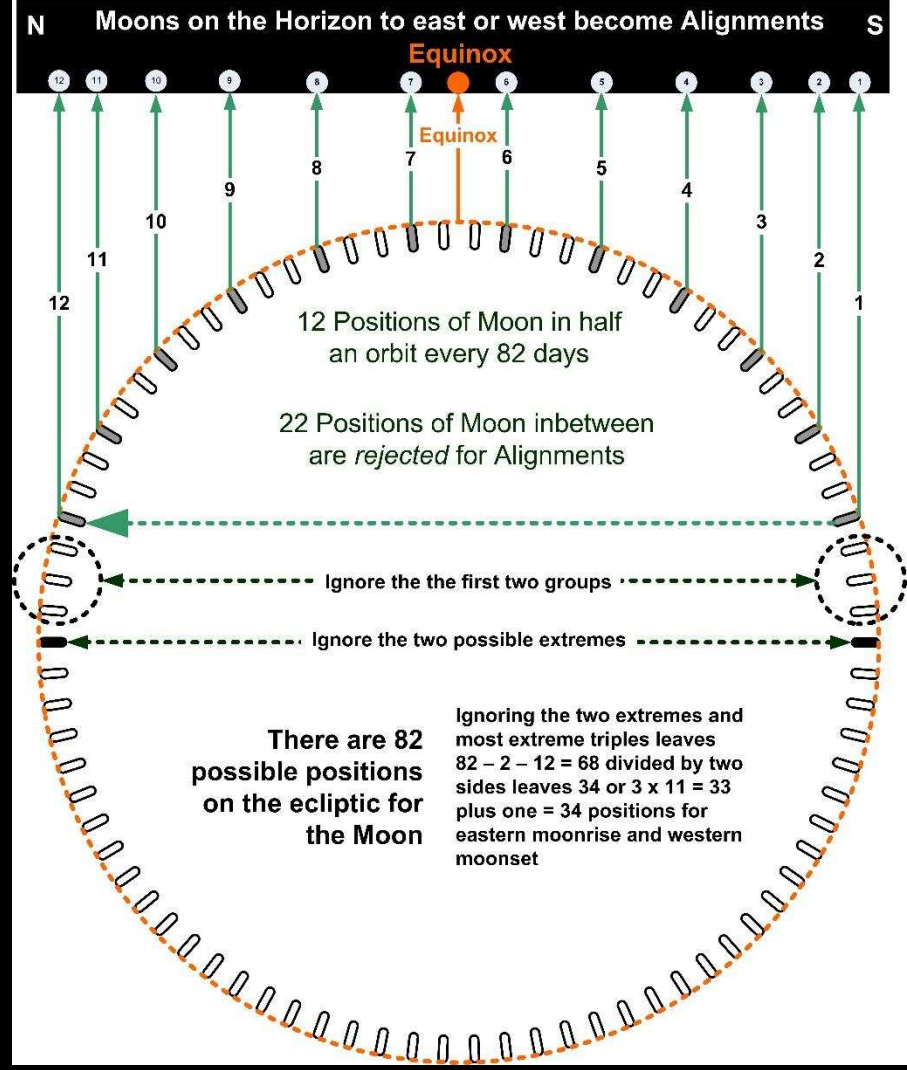


ECLIPTIC ASTRONOMY

The combination of horizon events, counting and simulation radically transformed what megalithic astronomy could achieve.

Ecliptic Astronomy removed the confusing mixture of celestial movements, the yearly orbit and the rotation of the earth

to reveal the sun and moon moving through the stars

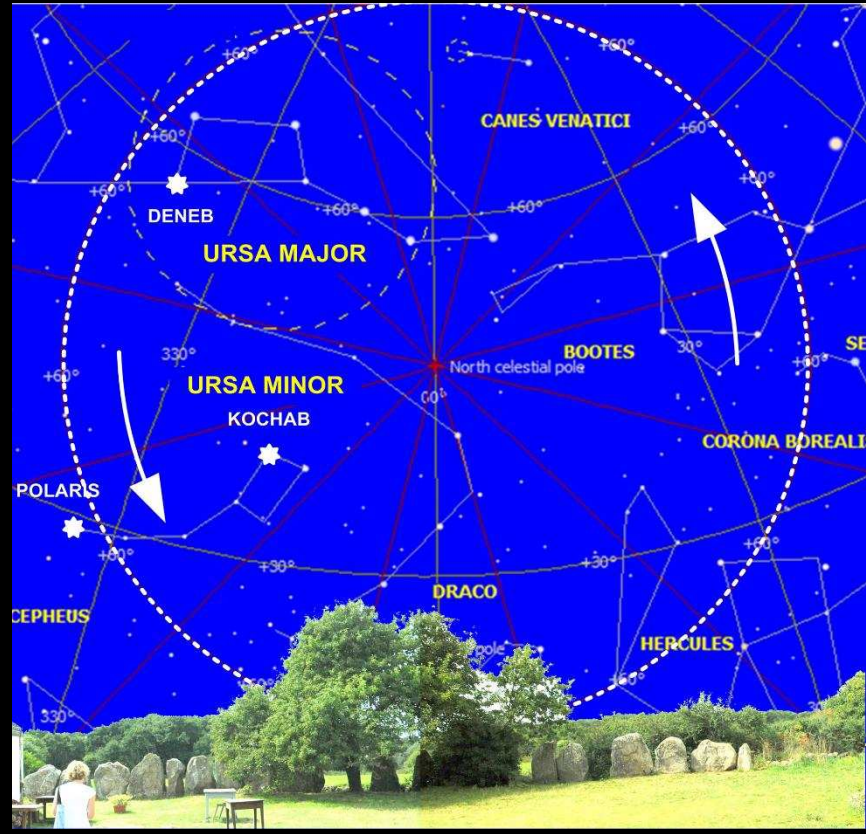


CIRCUMPOLAR COUNTING

The Alignments and Western Cromlech of Le Menec indicate the full integration of such skills with the last needed insight.

That the rotation of the Earth could be simulated around a 365 unit circle.

Time could then be ***quantified*** below the level of the day, just as we expect of clocks, so that horizon events could be measured more exactly.



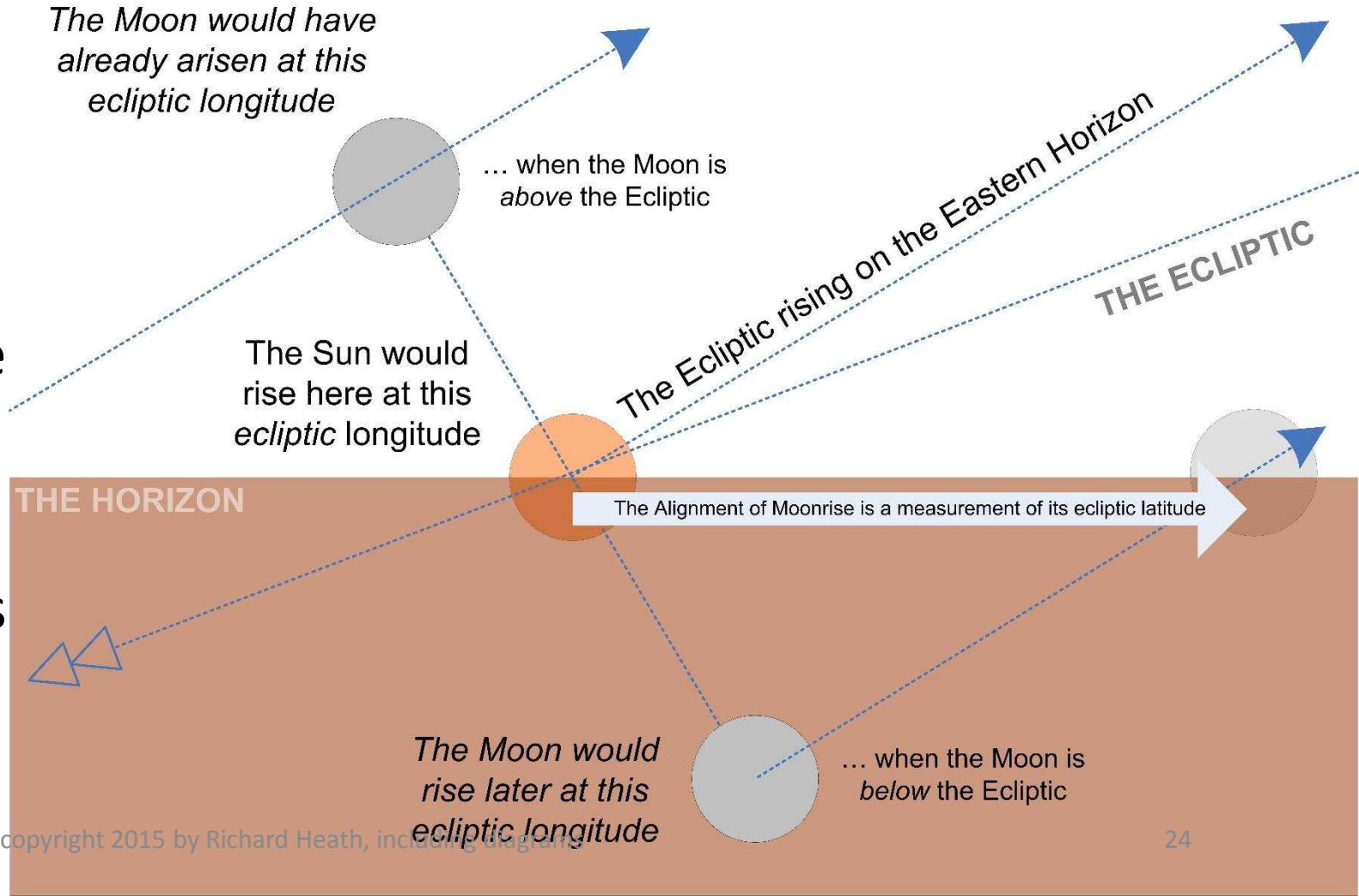
In fact, the northern sky is a clock recording sidereal time and is exactly like the sidereal clocks used at every observatory for modern astronomy.

Detecting the Moon's Nodes

Simulation of the Moon's orbit enabled its location to be known on the Sun's path.

If the Moon rises earlier than the Sun *would have* at that location, it must be above the sun's path.

Rising late means the moon is below the sun's path

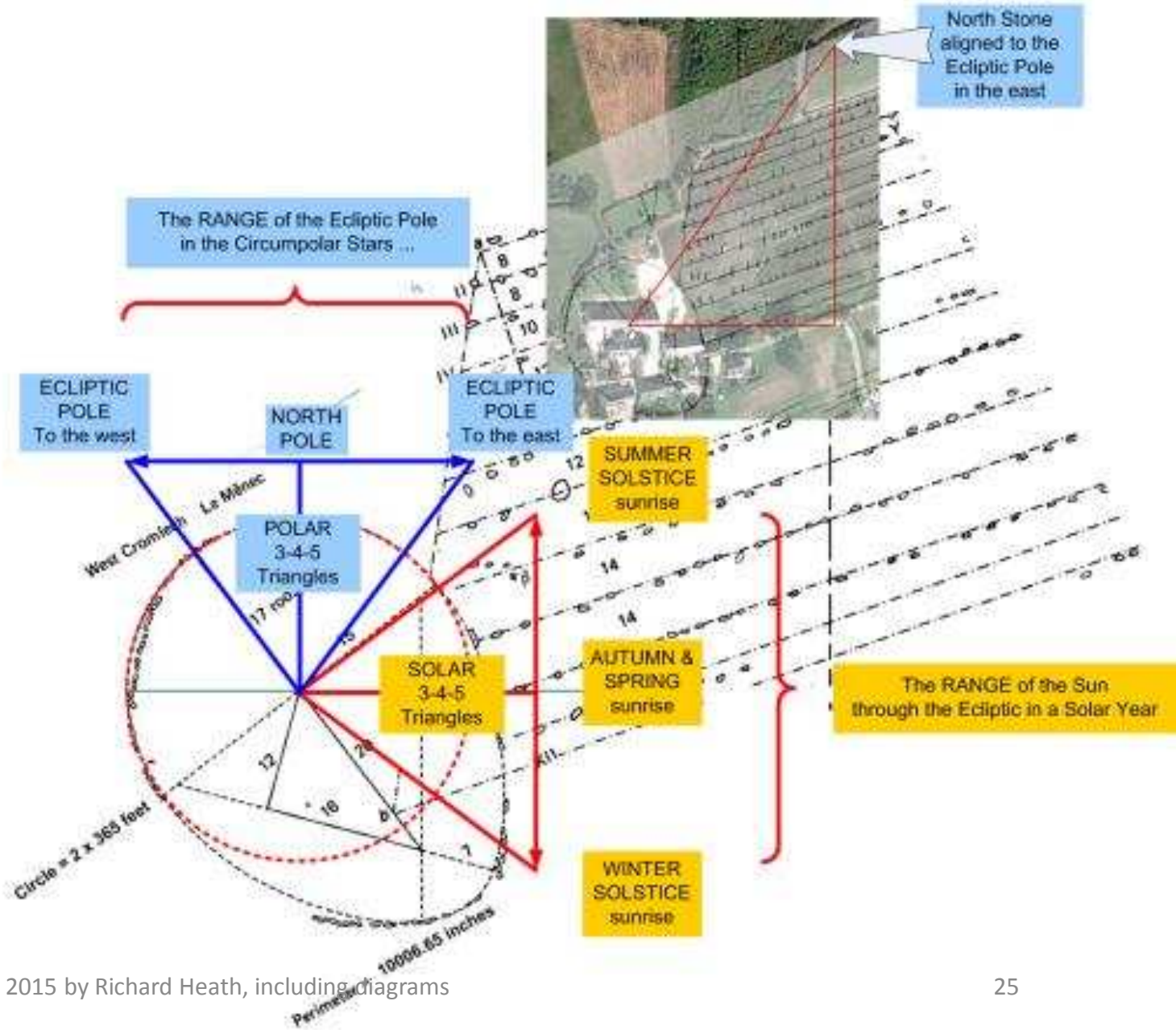


Circumpolar Counting at Le Menec

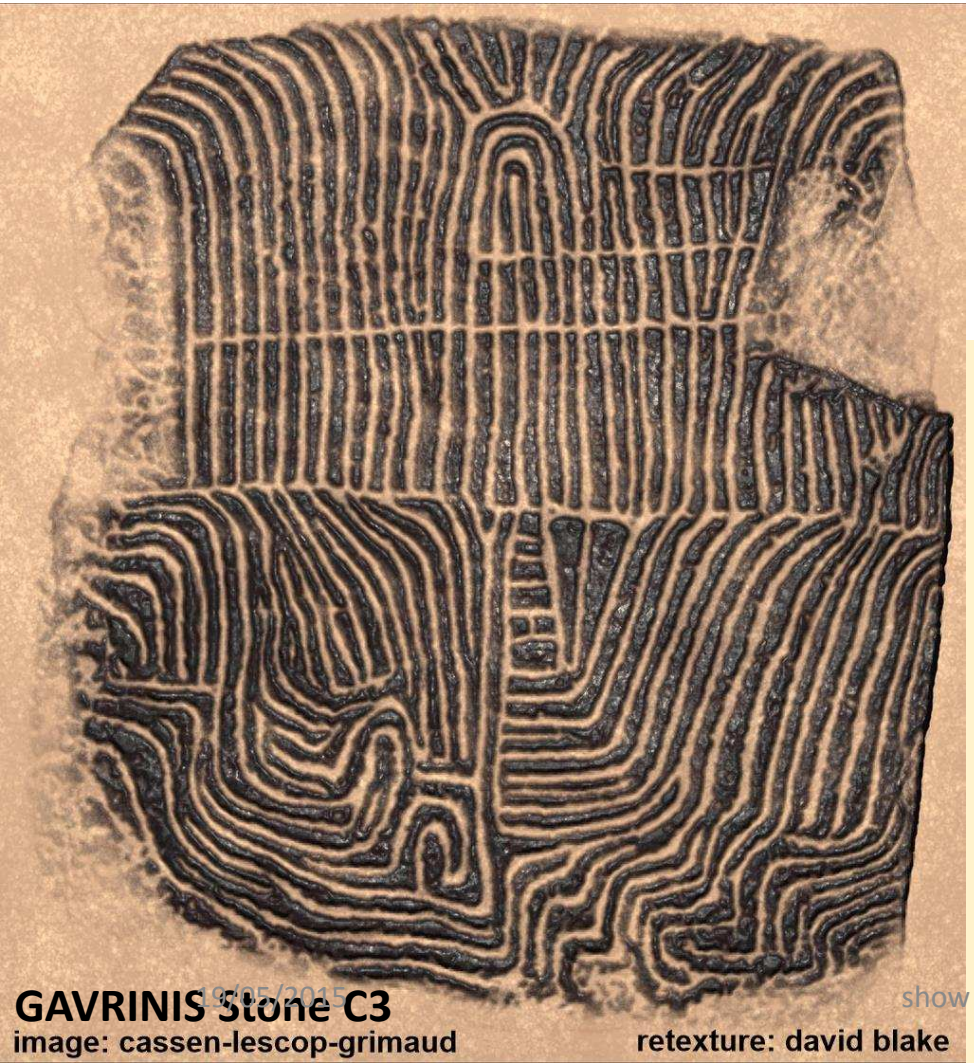
The circumpolar stars could track the earth rotation by bringing them down as alignments, complementing solar and lunar alignments to the east.

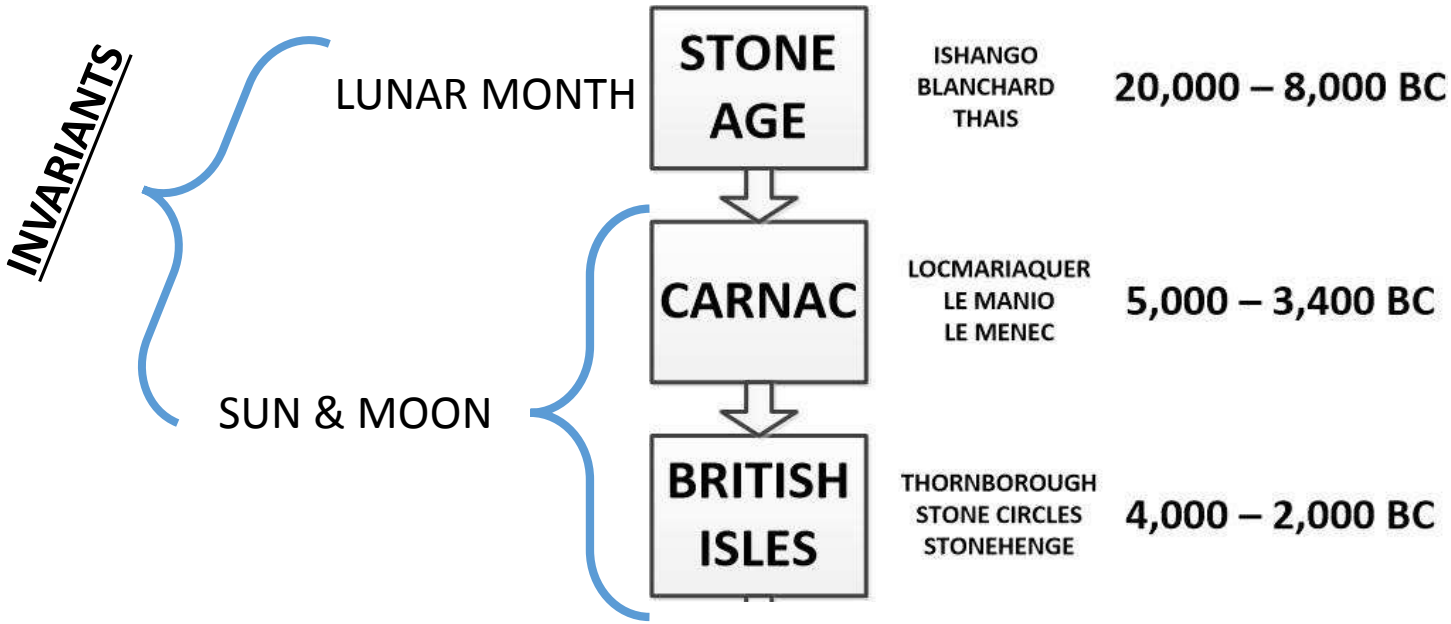
The cromlech has a

1. major axis pointing to the ecliptic pole,
2. minor axis pointing to the solstice
3. a forming circle of 2 x 365 feet and
4. A perimeter of 10,000 inches



The Evolution of Metrology as Invariant Ratio

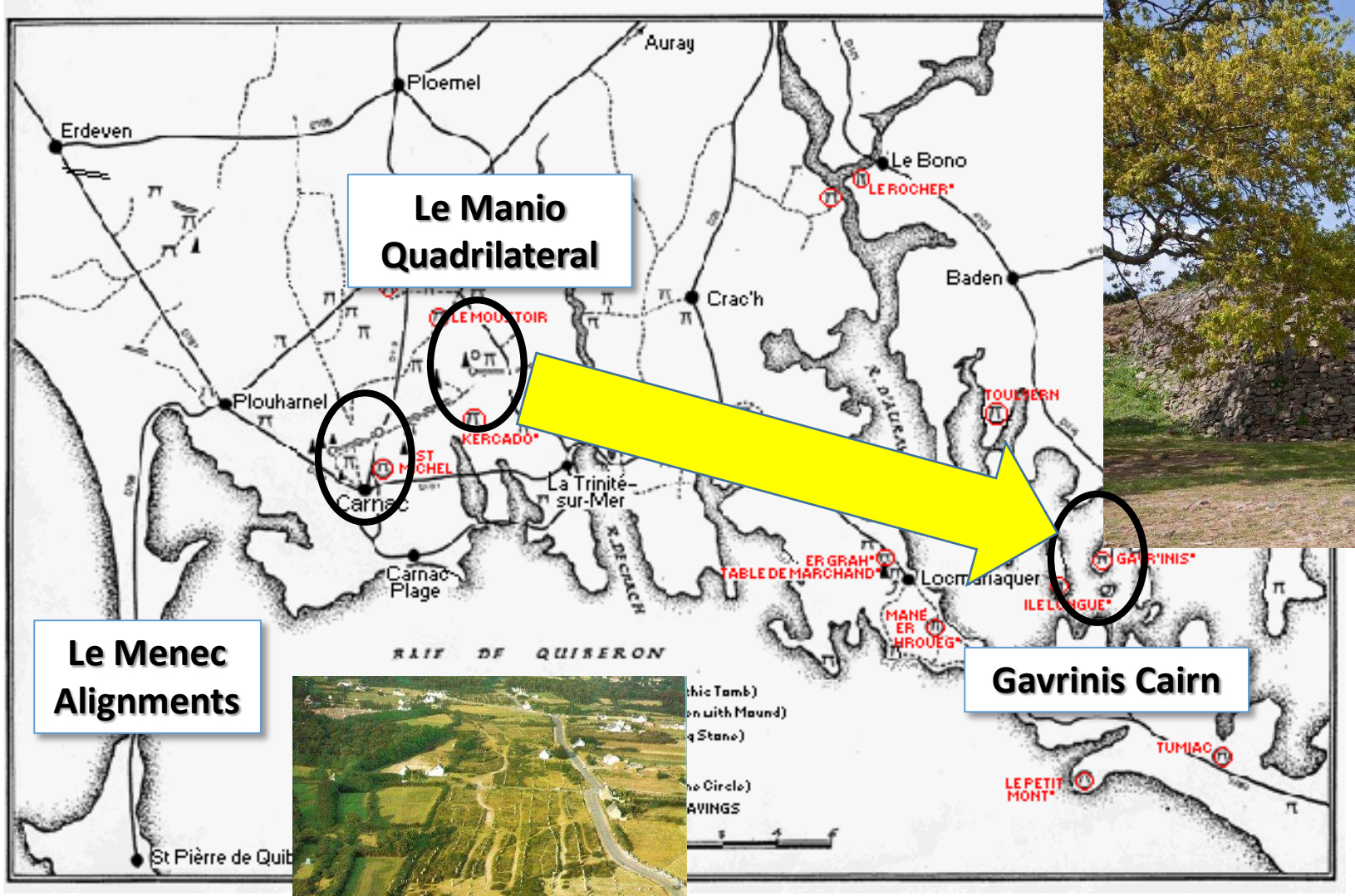




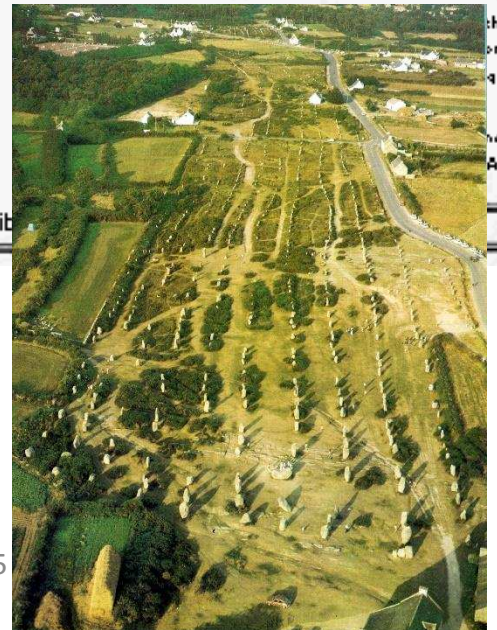
An invariance is something in the structure of the world which, unlike human knowledge,

- is not subject to the material destruction of artifacts or
- a loss of texts and know how.

Megalithic Monuments can tell us what they did once they connected to the astronomical invariants of the sun and moon.



Four kilometres east of Carnac's many monuments lies an island with a unique cairn, holding many engraved stones originally around Carnac, but conserved when reused to form a chambered cairn



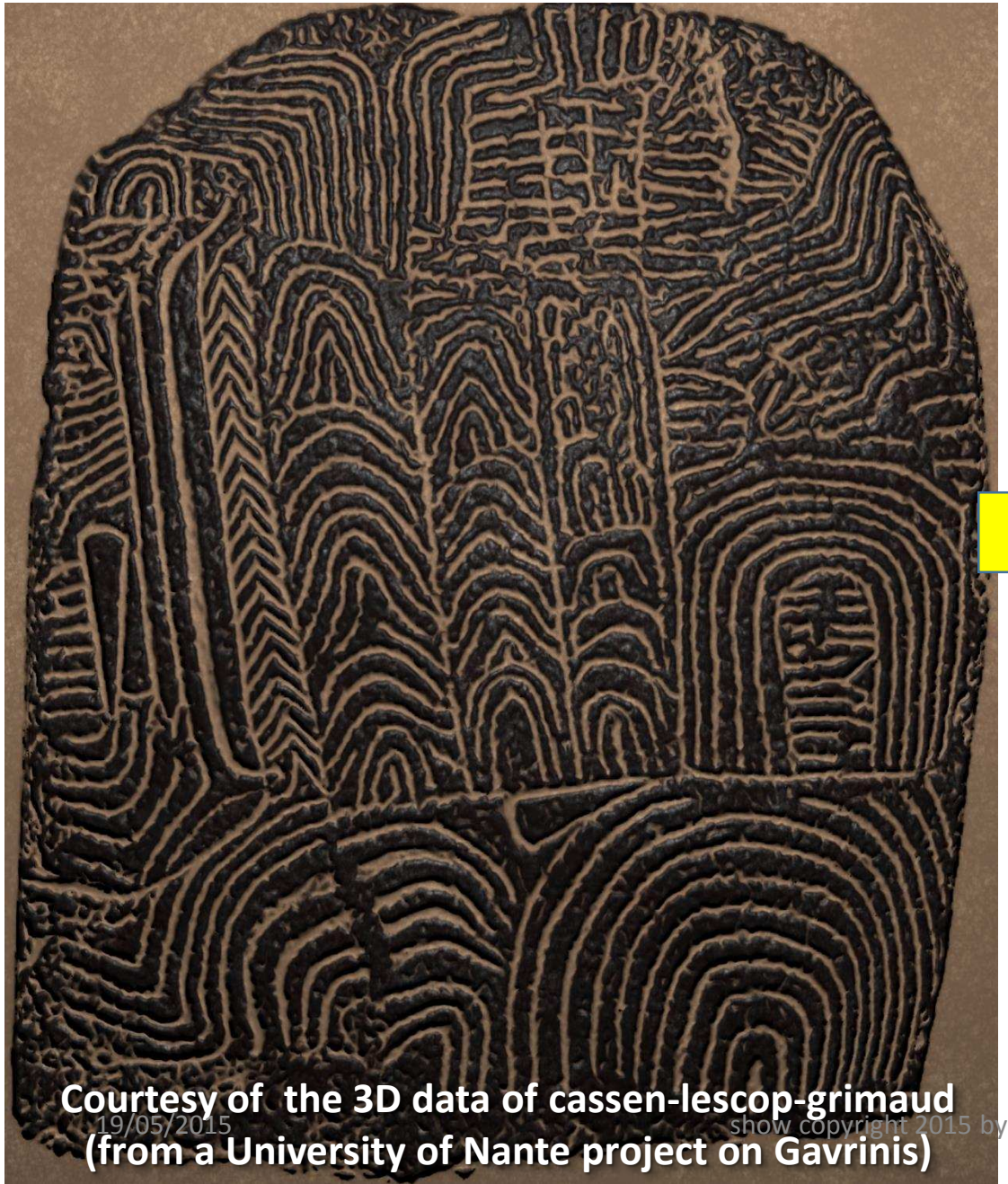
Stone L9

Stone R8

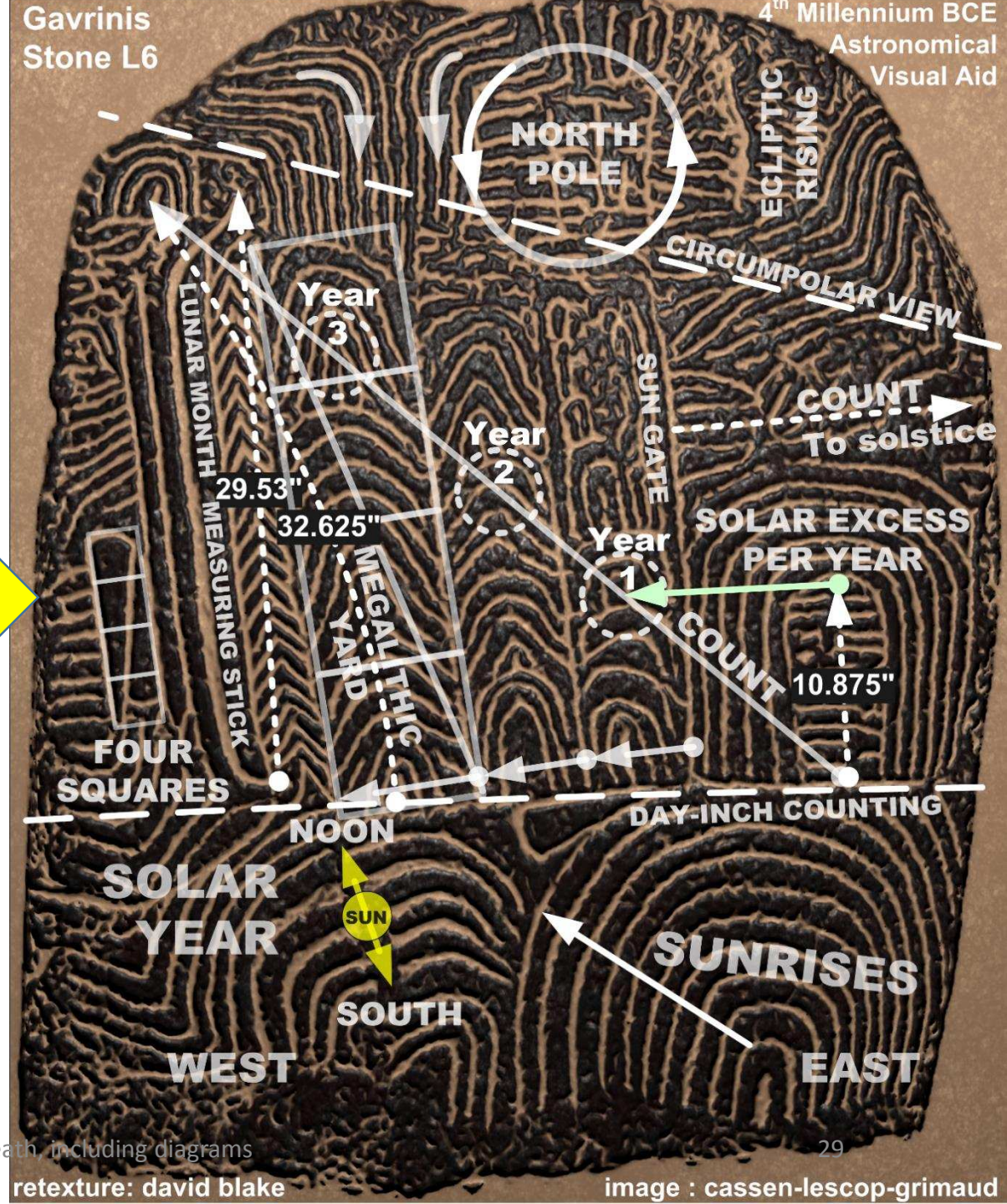
Information Boards

These engravings are weathered and were once outdoors. I believe these are a form of <u>pre-literate technical art</u>, originally alongside the monuments of Carnac

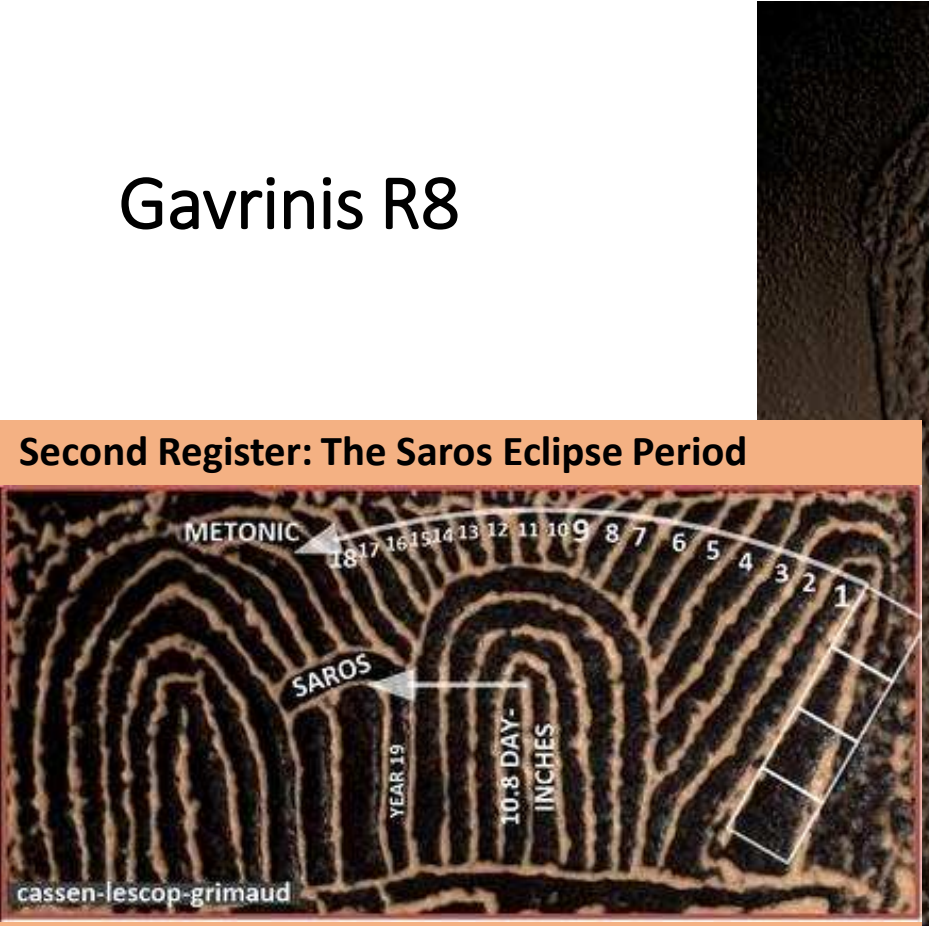
Gavrinis L6: An Astronomical LANGUAGE

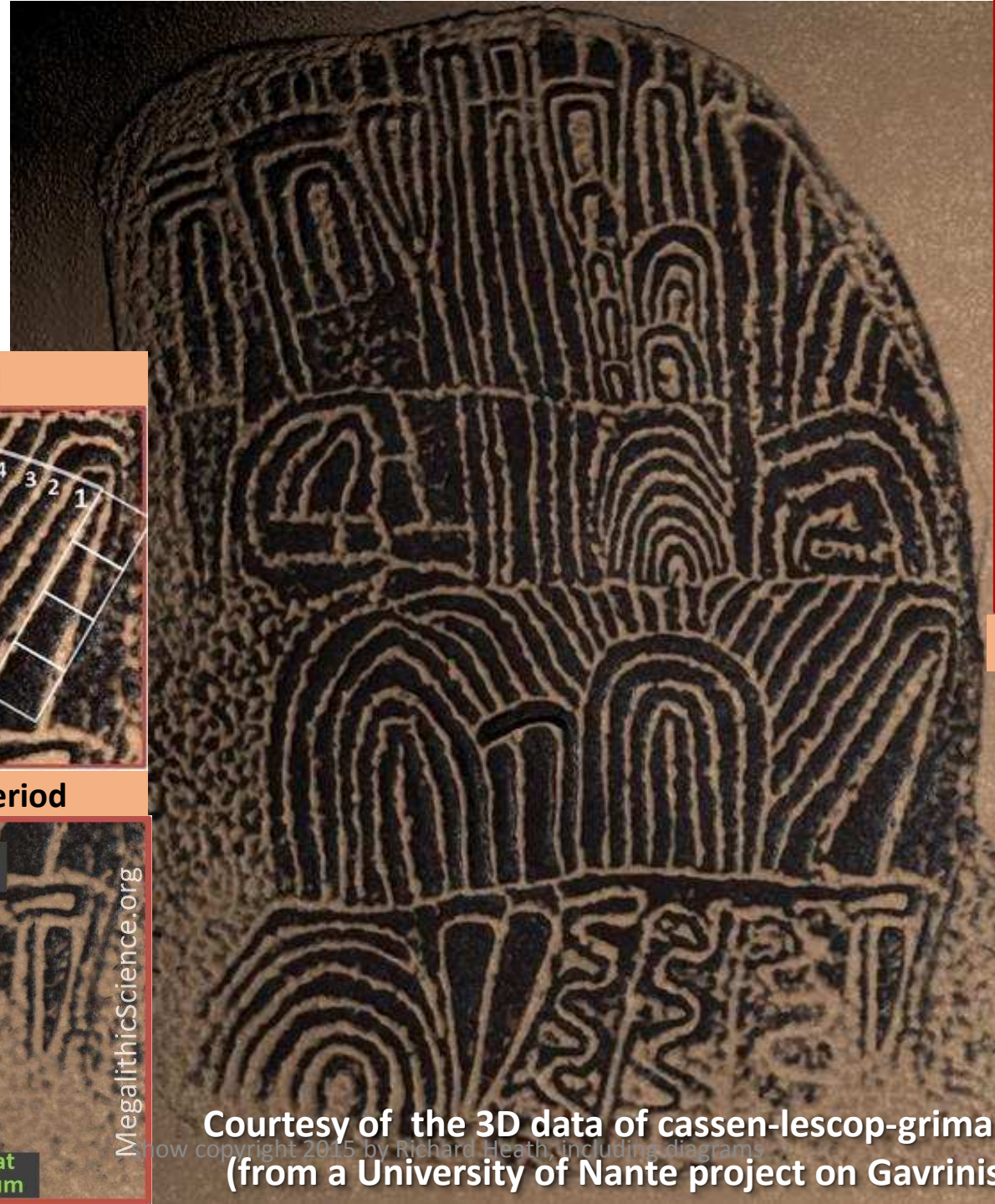


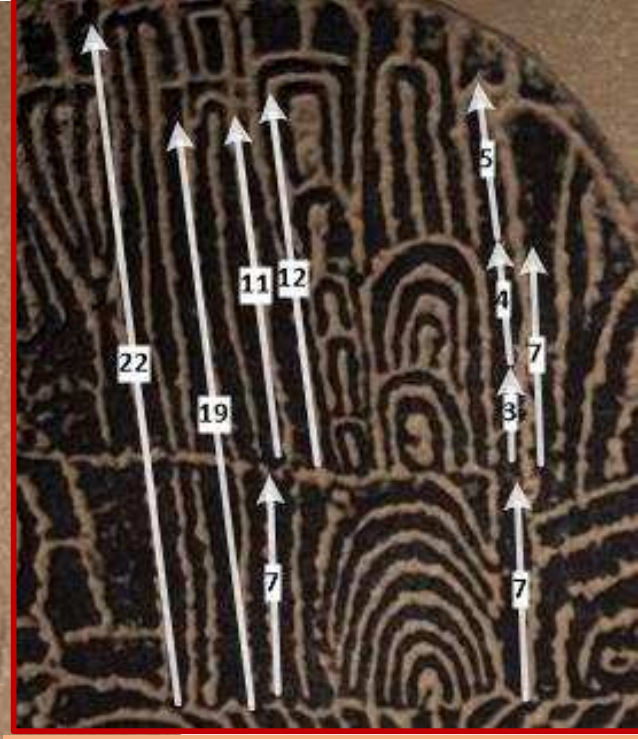
Courtesy of the 3D data of cassen-lescop-grimaud
(from a University of Nante project on Gavrinis)



Gavrinis R8







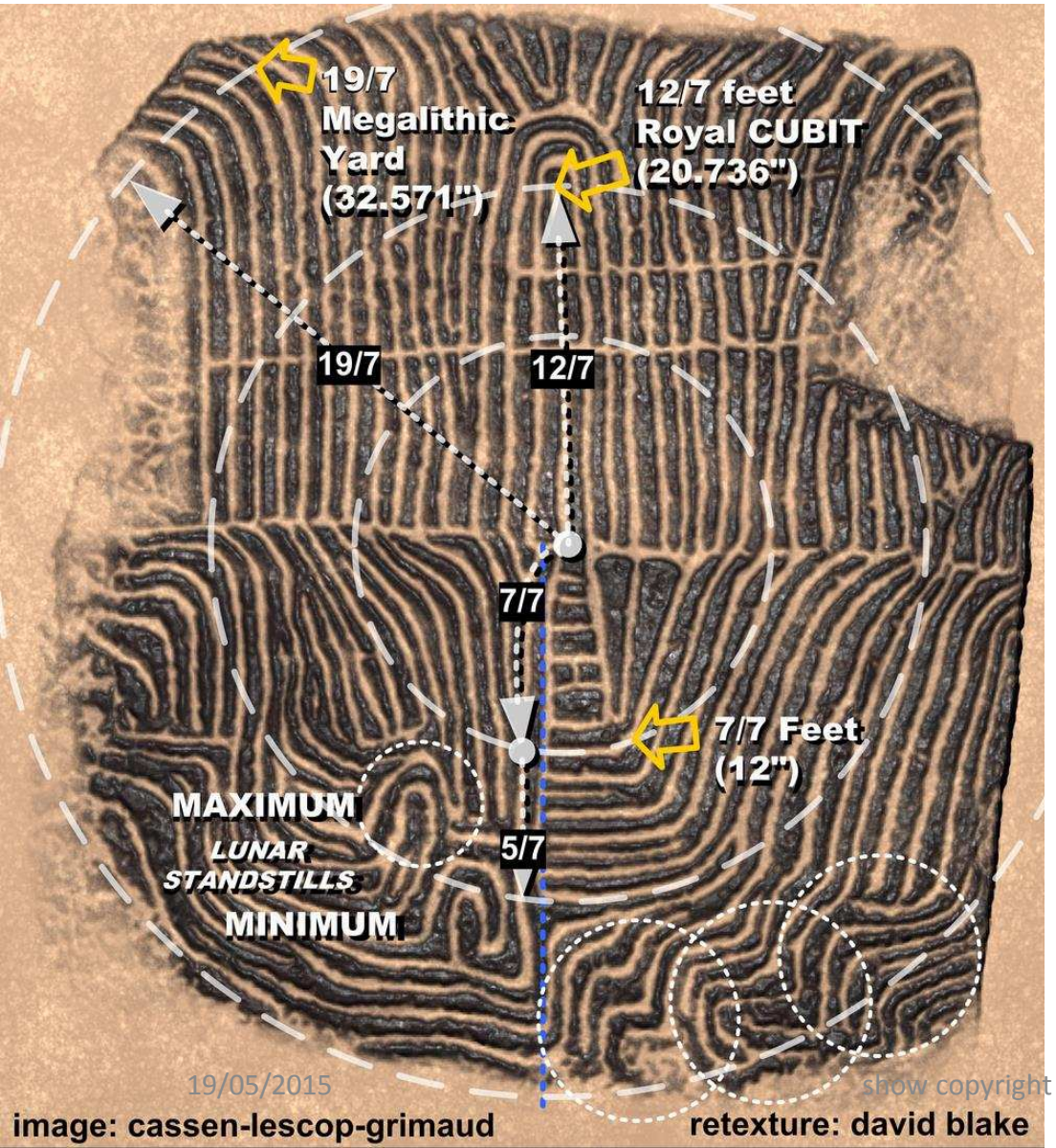
Upper Register: The Metrology

The Foot = 7/7
The Royal Cubit = 12/7
The AMY = 19/7
PI = 22/7
One quadrant = 11/7
12 = 3 + 4 + 5

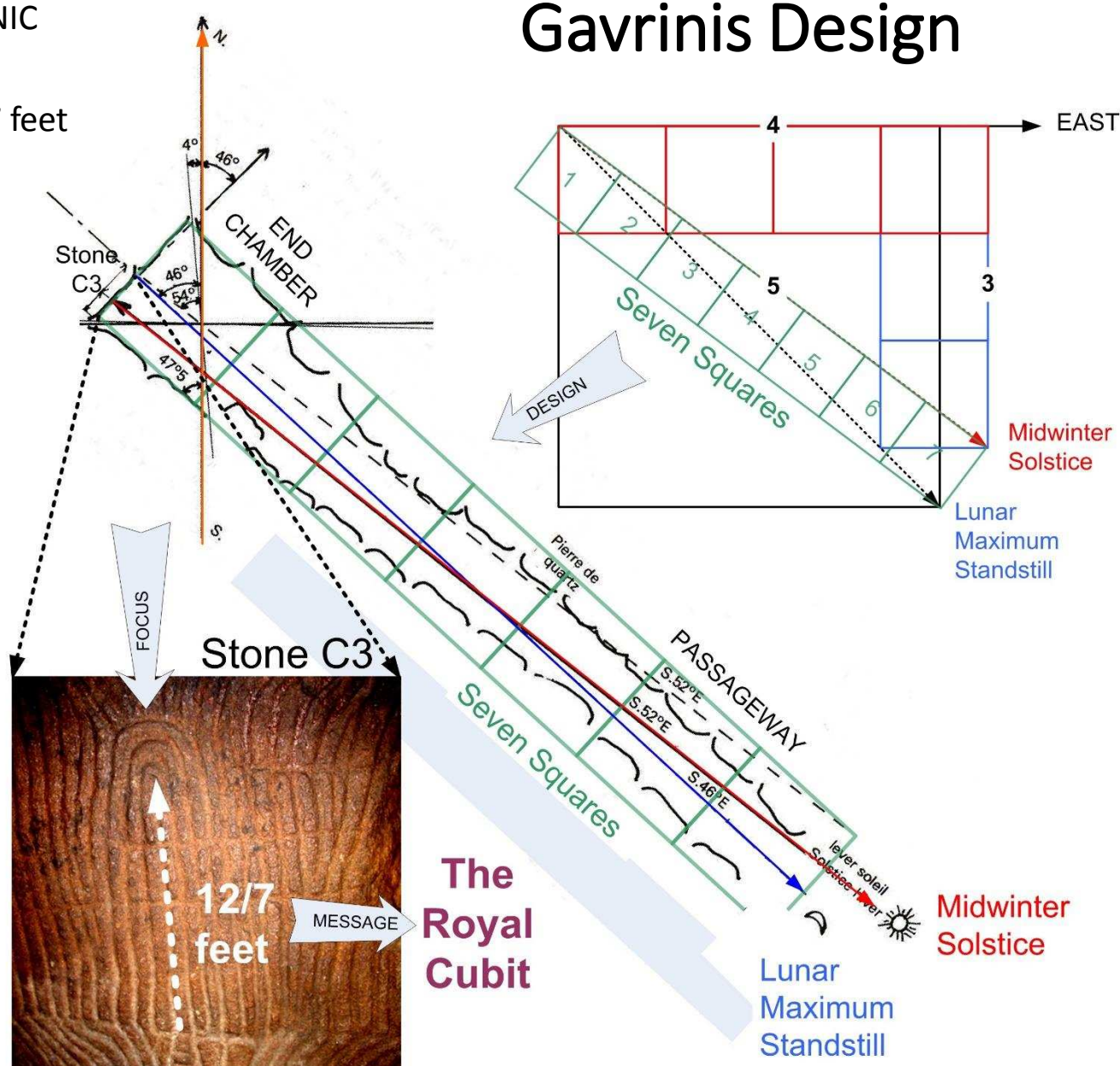
Courtesy of the 3D data of cassen-lescop-grimaud (from a University of Nante project on Gavrinis)

The evolution of the FOOT as twelve INCHES from the 19 year METONIC period, having 7 more months than 19 lunar years

The astronomical megalithic yard is 19/7 feet



Gavrinis Design



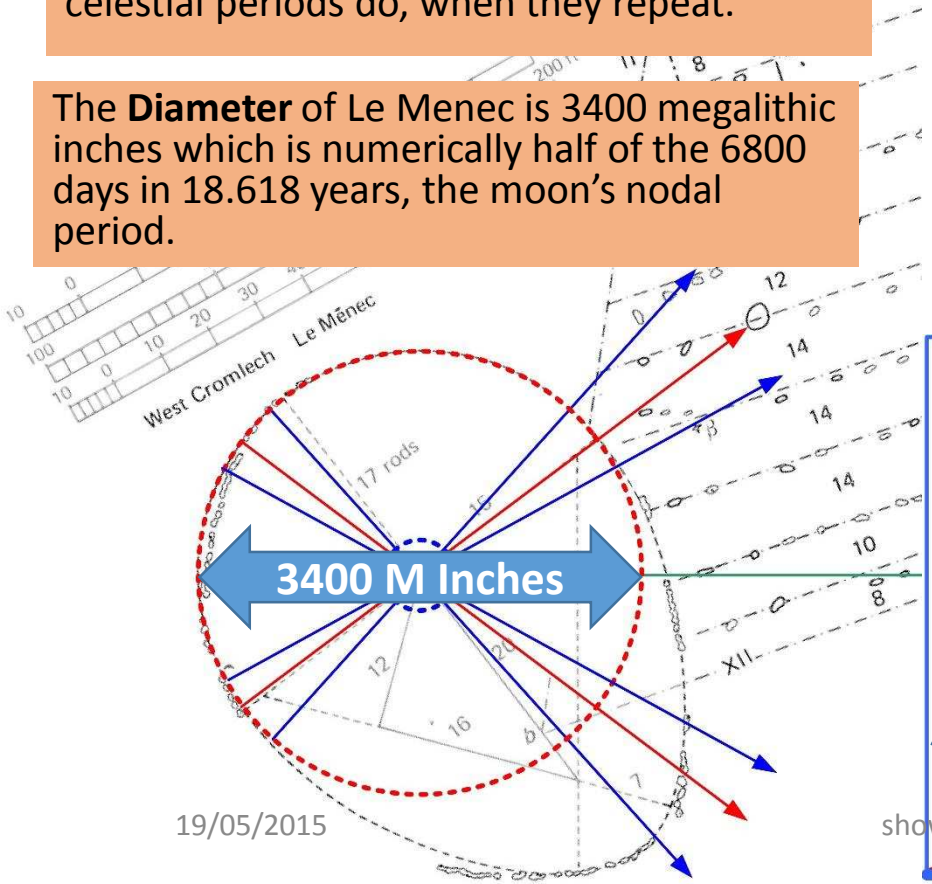
Long Counts at Le Menec's Western Cromlech

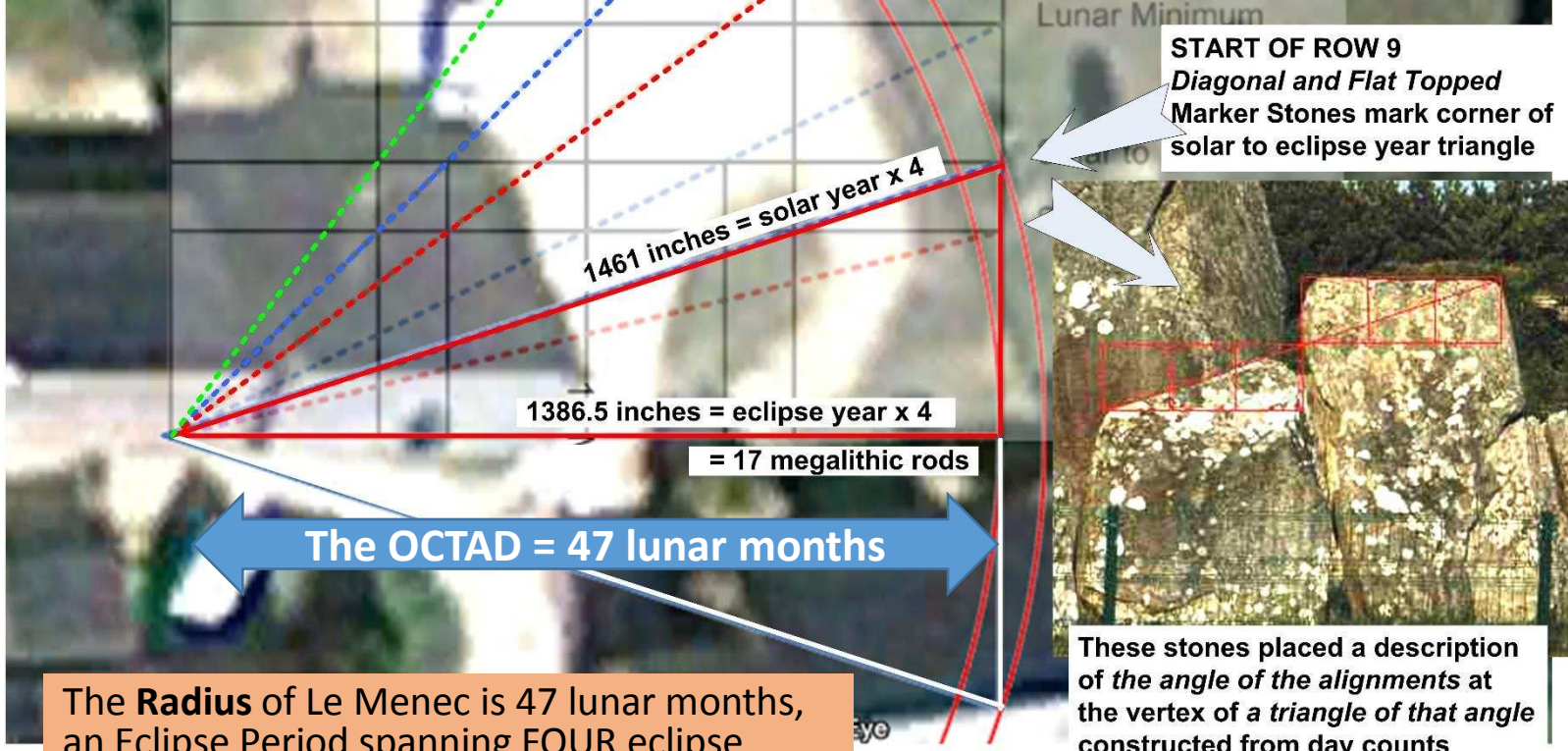
The circular form in monuments can be used to either

1. Count around the perimeter
2. Count across the diameter and back

This allows a count to start again just like celestial periods do, when they repeat.

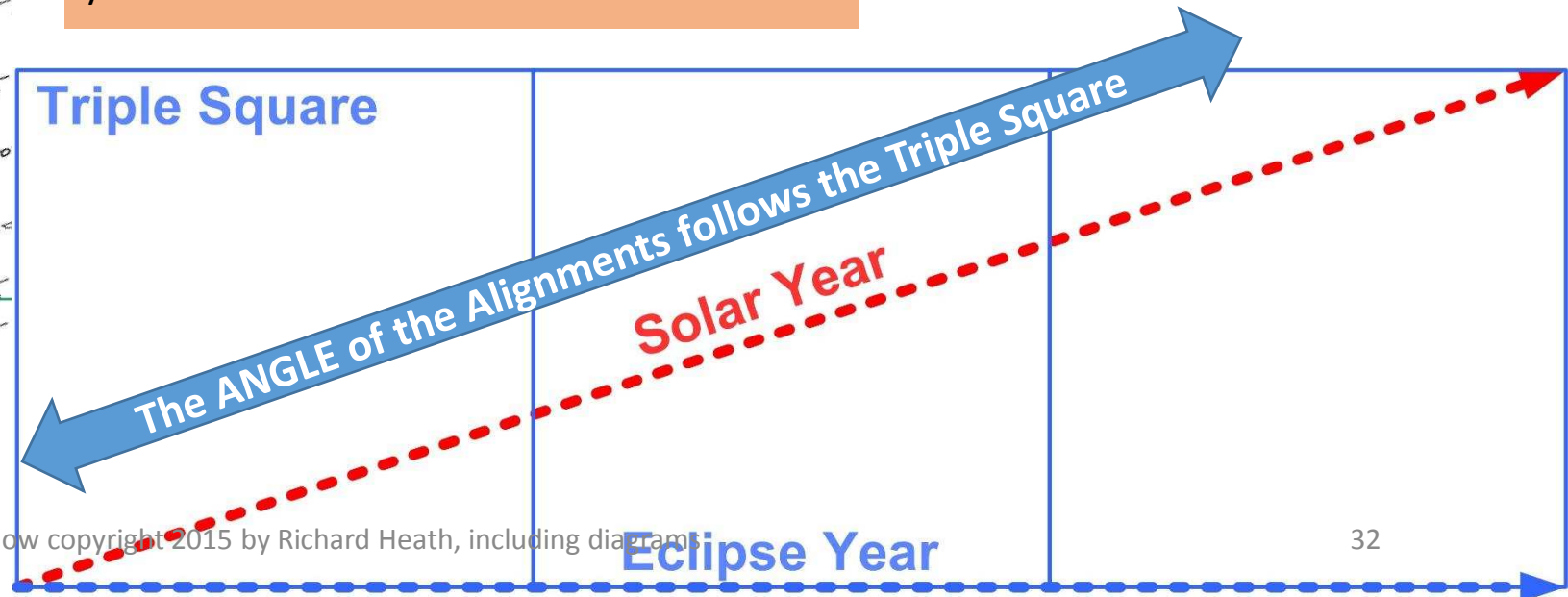
The **Diameter** of Le Menec is 3400 megalithic inches which is numerically half of the 6800 days in 18.618 years, the moon's nodal period.





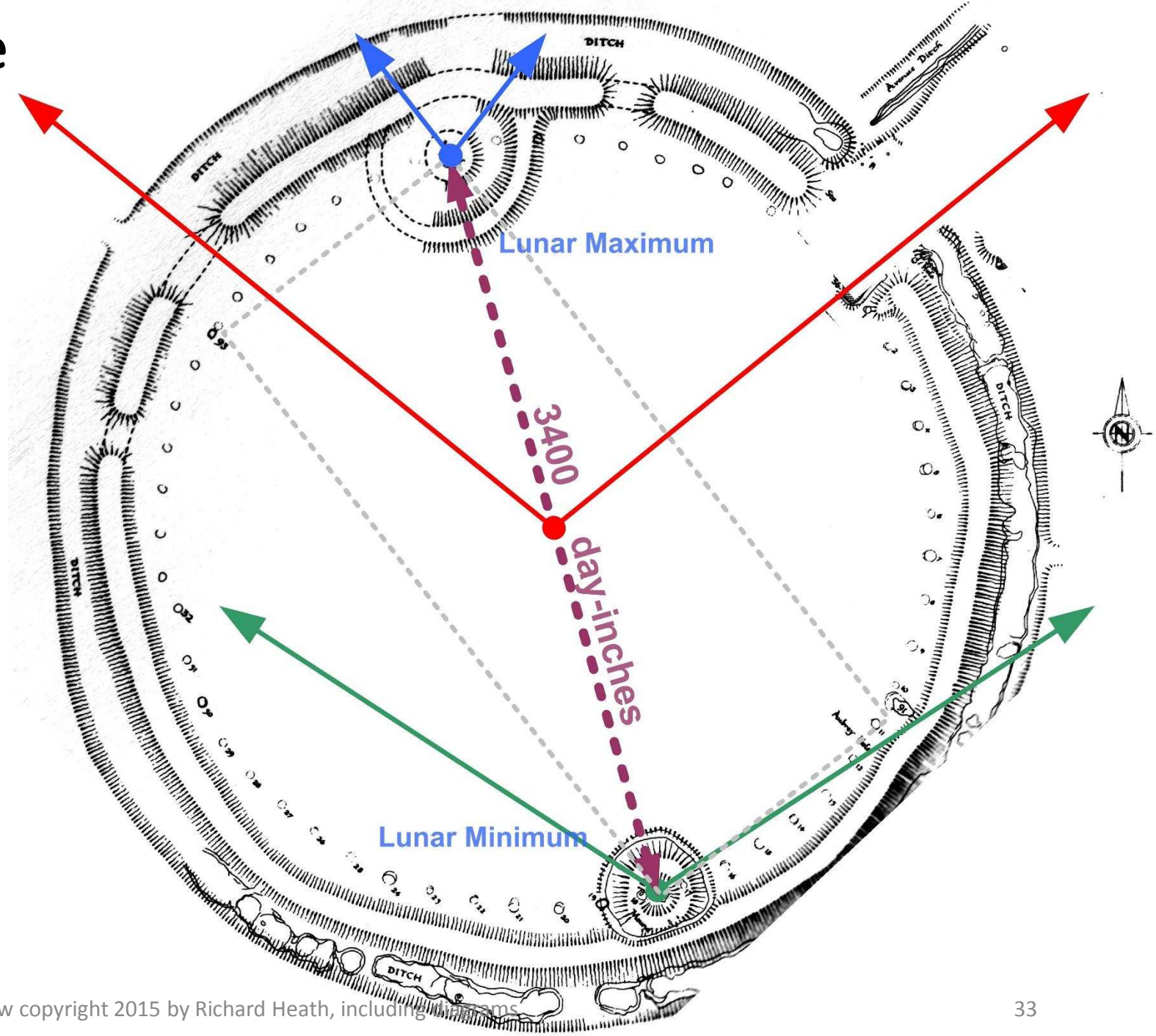
The **Radius** of Le Menec is 47 lunar months, an Eclipse Period spanning FOUR eclipse years

These stones placed a description of *the angle of the alignments* at the vertex of *a triangle of that angle* constructed from day counts encoded as in four inches per day



Long Counts at Stonehenge
Aubrey Barrows

My brother pointed out that the Aubrey Circle is just short of 3400 inches in diameter, so that one can imagine a count over 6800 days in Phase One at Stonehenge.



What does this "prove"?

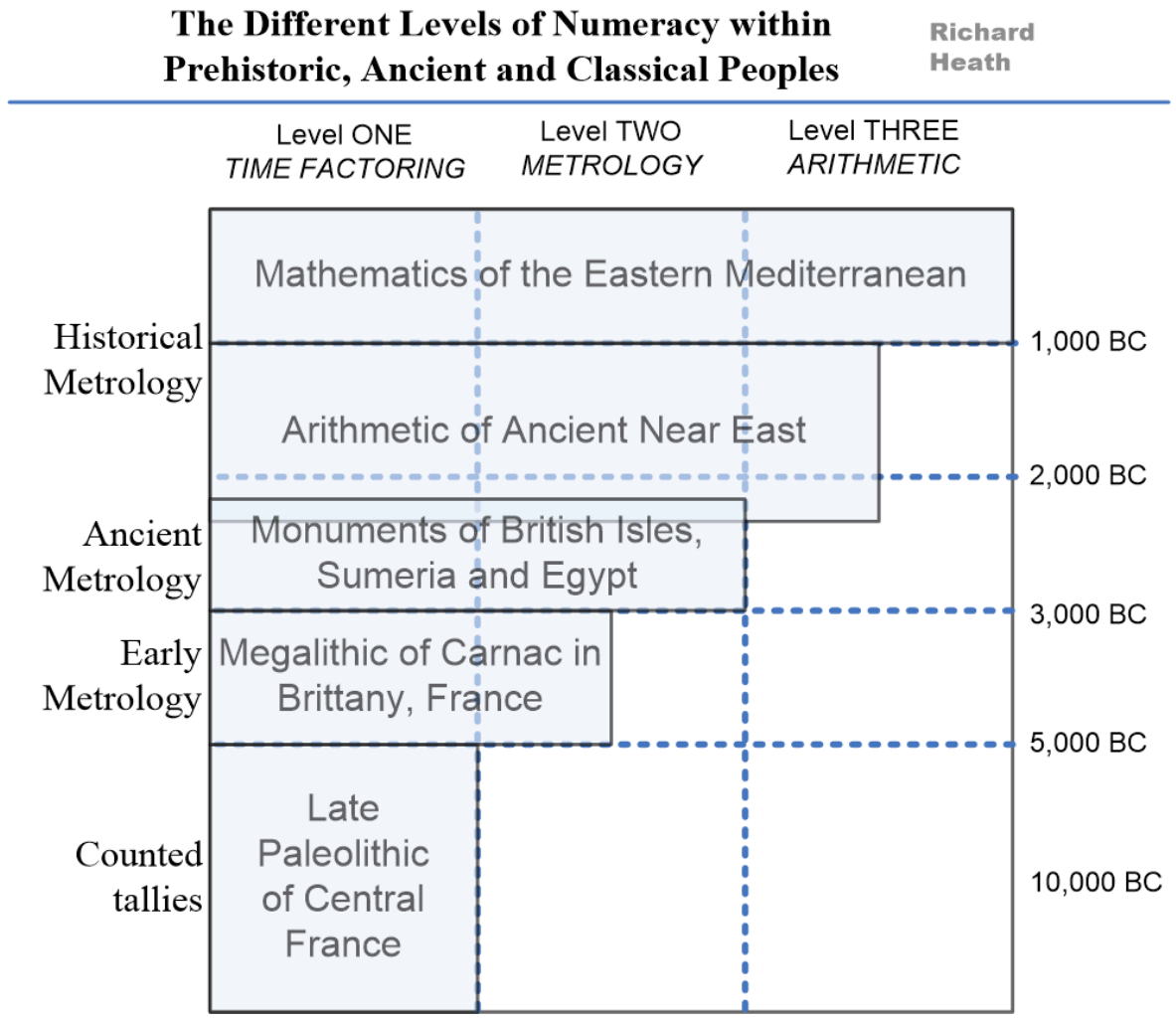
It is not about proof.

It is about understanding.

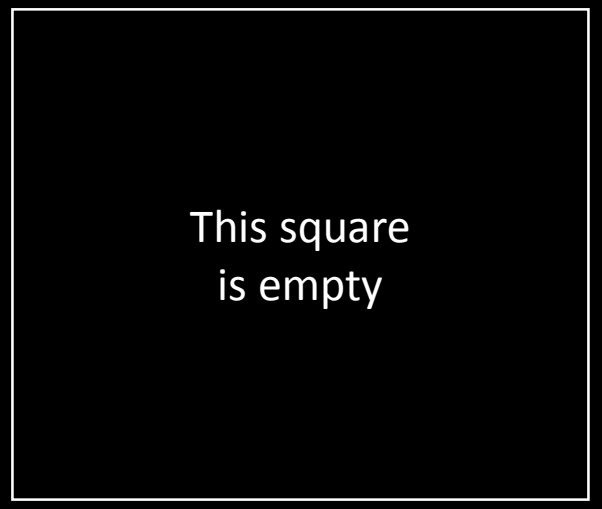
- It has become obvious that the counting of lengths is the missing partner of megalithic alignments.
- Geometry is then a third factor, leading to the form of monumental architecture.
- Out of this came an art of representing astronomical relationships, of numerate thought in paint and engraving

The History of Numeracy is Deeper than Expected

- There was an early phase of metrology in which counted units of length were simple “inches” and aggregations such as feet and the megalithic yard.
- This re-writes the pre-arithmetic history of numeracy as having a practical phase of development
- The Ancient Near East inherited this practical science of metrological methods as the main subject of it scribal schools



Understanding counting makes monuments readable by “ordinary people”



- Looking for Counting is a way of interacting with megalithic monuments.
- Tools such as Google Earth enable monumental analysis for early, ancient or historical metrology.
- It can tell us,

  “what the Ancients were up to”.

We know that intelligence can only emerge from some form of participation in which a change of mind is possible.

But….

you can’t put megalithic understanding into a mind filled with modern preconceptions!

Tea Break during the Counter Reformation

RichardHeath.info

RobinHeath.info

Visit MegalithicScience.org

Occasional articles of Megalithic Research and some resources such as Thom's stone circle site plans are being published when time permits.

Write an email to the author using the web form beneath the Contact menu item in RichardHeath.info; "author and researcher", where further links and essays may be found.

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