The Phaistos Disc: Minoans, Trojans and Etruscans

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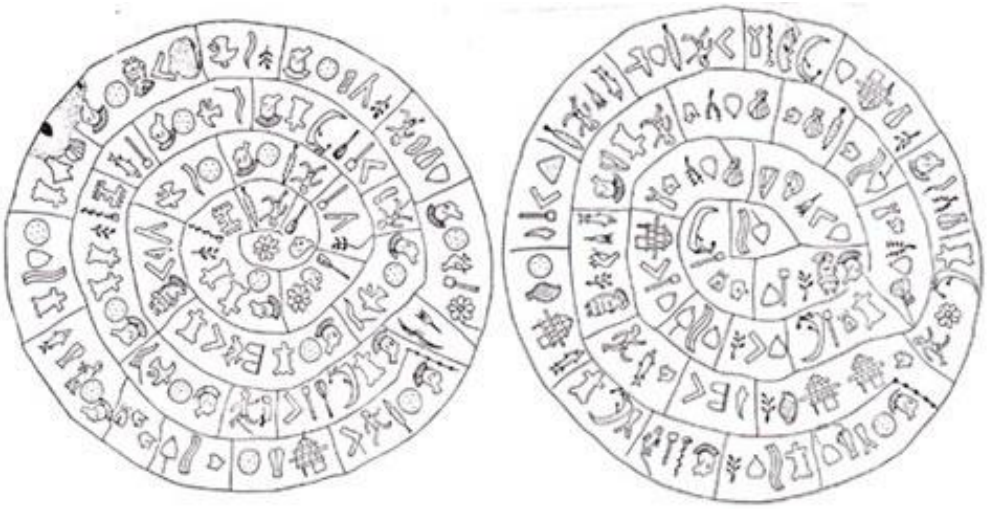
Summary
A cross-disciplinary discussion centred around the Minoan Phaistos Disc; pursuing the theory that it was a simple 30- and 31-day solar calendar; its possible connection to the Etruscans; or perhaps to the Trojans and the legendary Trojan origins of the Romans. Many timeless legends offer us overlapping versions of the migration of tribes from the Aegean Sea region to Italy and even beyond, to Britain and Ireland. If we could untangle some of these legends then it might be possible to compare the events to hard evidence of climate change, famines and archaeology; and to suggest a chronology for some of the migrations. The enigmatic Phaistos Disc and its possible use as a calendar may offer clues to supplement the other evidence.

Discovered in 1908 at the palace site of Phaistos in southern Crete the Phaistos Disc has proven to be something of an enigma. On a fired-clay disc 15 cm in diameter and 2 cm thickness are some 242 'words' composed of 45 recurring glyphs, arranged in clockwise spirals on each side. No irrefutable theory has yet emerged as to what the symbols may signify or the true purpose of the disc. One thing that archaeologists seem to agree upon however, is that the artefact is not a modern forgery. Similar symbols occur on another Minoan object – the bronze axe head from the Arkalochori cave [1] Other glyphs show a resemblance to the undeciphered Linear-A script.



The Phaistos Disc (www.tokenrock.com – click the picture for access)

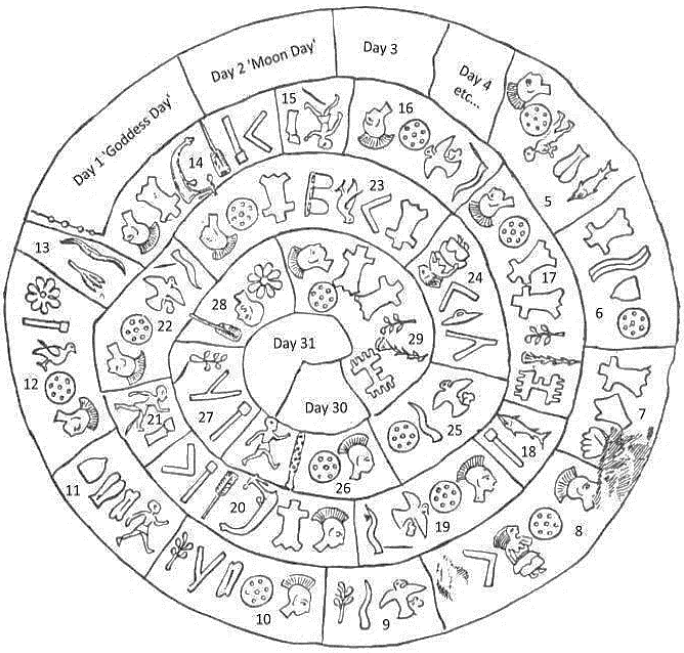
There is no agreement among specialists as to whether the script should be read from the outside in, or from the centre out. However, linguists consider that there are too many symbols to comprise an alphabet, yet too few to be hieroglyphs each signifying a word (like Egyptian). The consensus is therefore that each symbol represents a syllable (like Japanese). We should also ask: *what was the significance of the spiral arrangement?*

The simple detail that the disc was of fired clay (the only such example found on Crete) would suggest that it was intended for long-term use and so needed to be robust. Just as we might retain interesting objects as souvenirs, perhaps they did so too. Another possibility to consider is that it could be one surviving example of a 'mass produced' object cast from a mould, or 'printed' on to wet clay; there may be other discs just like it waiting to be found. This would at least prove that it was truly a Minoan artefact rather than an import from somewhere else in the Aegean region. Archaeologists date the disc loosely to the mid-second millennium BC. During the second and third millennia BC Minoan influence extended throughout the islands of the Aegean Sea and to the mainland coasts around it.

My personal interest in the Phaistos Disc goes back to my book *Atlantis of the West* in 2002. [2] For some reason, the publisher: *Constable*, chose a colourful image of the Phaistos Disc for the cover! "It's visually stunning", I was told. "Well, if you say so", was my response at the time – but it was far from what the book was about!

The spiral format of the disc, showing three-and-a half turns on each side making seven turns in total, suggested that it might be a seven-year 'spiral calendar'; I had made the case at the time that a spiral wobble of the Earth's axis caused seven-year climate rhythms during the early third millennium BC, consequent upon an astronomical event.* On this theory, each boxed 'word' would represent a season and so forecast when to expect abnormal seasonal weather, i.e.: *mild winter, hot summer, cool summer*, etc. There are numerous examples of spiral carvings on seasonally aligned Neolithic monuments dating from the third millennium BC. Although the Phaistos Disc cannot be dated as early as the third millennium BC, calendars are conservative and would preserve an older structure. If you don't like this theory, then you would need to propose some other reason why the spiral format was chosen.

Coiled-snake spirals with seven turns are also known from Egypt and are usually considered to be a board game called Mehen. Perhaps the Phaistos Disc was also a mass-produced gaming board (see also: game-board | British Museum). When eventually the script is deciphered, the disc may turn-out to be quite mundane after all. Perhaps it just made a nice table mat!



Another possibility to float is that the disc was a simple *monthly calendar* to remind the owner of the named days of the month. We see 31 'words' on side A and 30 on side B – suggestive of the twelve idealised 30- and 31-day solar 'months' as are later found in the Roman calendar. Each word or token could therefore be a day of the month, named after a Minoan god or goddess.

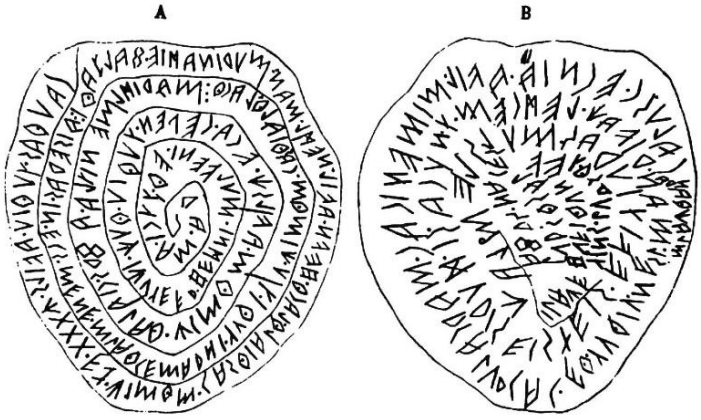
This format would be a precocious invention of the Julian Calendar that Caesar would acquire from Cleopatra's court astronomer; rather like biologists would term a 'parallel evolution' – a similar adaptation to the same real-world problem. **

Speculative? All one can reply is that: *the disk would work as a calendar* if you moved a counter around the spiral each day; no different than ticking-off the days of the month on your desk calendar with a pen!

The structure of the modern Julio-Gregorian calendar preserves the 28-day variable month of February (*Februarius*) from the old Roman calendar – but it isn't really needed. If the arrangement were a simpler (7 x 30) + (5 x 31) = 365 then an extra day could just be added to one of the 30-day months each fourth year (or just turn the disc over). Perhaps as in the Egyptian civil calendar they let the seasons wander. The 30-31 day 'coincidence', which just happens to create an artefact that can be employed as a calendar, is one of those unlikely circumstances that suggest design rather than chance. The significance of this coincidence will be further discussed below in relation to the Etruscan and Roman calendars.

The author's desktop Phaistos calendar – it works just fine!

Since 2002 the possible links between the Etruscans of central Italy and the Aegean region have been reconsidered and this has invited comparison between the Cretan disc and an Etruscan spiral artefact: the *Magliano Disc*. This connection is reinforced by modern DNA research, which has tested so many older assumptions that have lain unchallenged in the textbooks. Archaeologists would prefer to view the Etruscans as a progression from a native Italian culture that had been in that region since the Neolithic, evolving via the Iron Age Villanovan culture (c. 900–700 BC); The earliest recognisably 'Etruscan' artefacts date only from the 7th century BC when the culture also began to display influence from the new Greek colonies in the south of Italy and Sicily. Classical Greek authors referred to the Etruscans by the name: *Tyrrhenians*.



The Etruscan Magliano Disc
(Source: www.ancient-origins.net)

The Magliano Disc is dated to the Fifth Century BC. Stamped onto an 8 cm diameter lead disc are spiral inscriptions of five turns on each side; written in an Etruscan script that can still be only partially translated. However, Etruscan was written in an alphabet rather than a syllabary.

The purpose of the Magliano disc can scarcely be determined any better than for the Phaistos disc, but specialists think that they recognise the names of some Etruscan gods within the spiral inscription. [3] This has prompted suggestions that both artefacts might have had a religious motive, perhaps a prayer. But look at the practical calendar on your own wall and you will see days and months named for ancient Roman and Germanic gods (i.e.: Monday = 'moon day', Friday = 'Freya day', etc). Other calendrical interpretations would compare Etruscan divination to their astrological beliefs and those of the Minoans. [4]

The belief that the Etruscans originally came from Anatolia is as old as the Romans and many more recent specialists have also proposed connections with Asia Minor, especially with the Lydians and their neighbours, the Lycians. In the 1950s Michael Ventris (who deciphered the Cretan Linear B script) made a case that Linear B was Etruscan, before it became clear that it was an archaic form of Greek. More convincing is the relationship between the Etruscan and Greek alphabets; specialists can read how the words were pronounced by analogy with Greek, but their meaning cannot be understood save for a few proper names and numbers.

Links between the Etruscans and the islands off the Aegean coast of Anatolia were first suggested in a legend recorded by Herodotus who was a native of Halicarnassus on the coast of Asia Minor: the region of Lydia. [5] The story recalls *Tyrrhenus* the son of King Atys of Lydia. In the reign of Atys there occurred a prolonged famine; and so, after eighteen years of starvation the king decreed that half the population must emigrate in search of better prospects. This reference to a precise *eighteen-years* is a typical example of a 'mythological fossil' that betrays a real event; a fictional storyteller has no need to state a precise period. It is the present author's method to seek-out these 'fossils' together with coincidences between unrelated historical and mythological sources.

Herodotus says that the Lydians drew lots to decide who should remain and who should emigrate along with Tyrrhenus; ships were built, and the colonists set sail. After passing many other countries, they eventually settled in the region of Umbria, in central Italy, where they changed their name to *Tyrrhenians* after their eponymous leader. We cannot know precisely when these supposed events occurred, but a loose date in the late second millennium BC is generally assumed.

This story raises the possibility that other wandering Bronze Age colonists may have settled elsewhere in the Mediterranean and beyond. Perhaps other sea-faring Greek and Aegean nations embarked on similar migrations in their desperation, just as we see economic migrants in modern times. We may note other timeless famine stories such as the Biblical Joseph and the Egyptian Ipuwer Papyrus (first intermediate period c.2100 BC) as examples of ancient famine catastrophes; with other possible climatic fluctuations at the second and third intermediate periods; and even as far back as the mid-Neolithic. There may have been numerous ancient famines, triggering migrations, which the repetition of similar-sounding elements has merged into a single narrative; such is the nature of oral myths and legends.

Herodotus did not assert that all the Etruscans of his own era were descended from the colony of Tyrrhenus, merely that their heirs still lived there. Recent DNA studies would suggest that only some isolated communities in modern Umbria could claim descent from the Etruscans. Specialists would prefer that the migration, if true, occurred during the Neolithic around 5,000 years ago, or earlier, when other migrations from Anatolia to the west occurred. [6] Could Herodotus be recalling a legend quite as old as that? If so, then it overlaps the period of High Minoan maritime culture that dominated the Aegean islands and coasts, before it was devastated by the Thera eruption around 1645 BC. Perhaps the wandering Tyrrhenians took the idea of the spiral disc with them to their new homeland?

We must also rely upon Herodotus with regard to other timeless migration legends; he tells us of a colony of Cretans at Miletus on the Anatolian coast that dates from the era when King Minos expelled his brother Sarpedon from Crete (a legend of uncertain date but loosely sometime in the late third Millennium BC). Again, this would suggest a close relationship between the Lydians and the Minoans. The language of their Anatolian neighbours the Lycians is also believed to have belonged to the Luwian Group and only distantly related to Hittite. Herodotus also confirms that the Minoans were not Greeks:

> *The Lycians came originally from Crete, which in ancient times was occupied entirely by non-Greek peoples.* [7]

We are also told that the Lycians took their mother's name and operated an apparently matrilinear, or even matriarchal system of inheritance. Herodotus says that in some customs they resembled the Cretans, in other ways they were more like the Carians.

Of other west-Anatolian nations, the Carians and the Caunians, Herodotus cites their own beliefs that they too came from Crete. The language of the Carians was also related to the extinct Luwian group. Therefore, any of these lost Anatolian languages might be the non-Greek script that is represented as a unique 'printed font' on the indecipherable Phaistos disc. The linguistic evidence remains inadequate so we still cannot rule-out a native non-Indo-European origin for the Cretans.

The customs of the Lydians, as Herodotus describes them, do indeed stand comparison with those of the Etruscans, most notably the free social conduct of the women. Herodotus describes the liberty enjoyed by Lydian women, who were free to associate and choose their husbands. Etruscan women retained a similar independence, in contrast to later Roman marriage customs. Unlike Roman women they could attend public functions as the equals of their husbands; they could own property and were educated. This equality of status between the sexes seems to have been a characteristic of many indigenous Mediterranean cultures, including the Minoans. Indeed, we may note a parity of roles, even outright matriarchy, among descriptions of ancient Libyan and Egyptian women; and of course, on the island of Malta. This contrasts with the warlike male-dominated cultures of the Latins, Greeks, Celts and other nations further north, whom we may consider as Indo-European intruders from the Steppes.

In 2007 two DNA studies revealed that some people living in the Umbrian region of Italy do indeed show evidence of an Aegean origin: specifically, from the island of Lemnos. The correspondence was most prominent in the mitochondrial DNA of the female line. [8] [9] If this may be considered as evidence in support of the migration of Tyrrhenus then we should have to view the ancient kingdom of Atys and his 'Lydians' (or 'Meiones' as they were formerly called) as extending further north along the coast of Anatolia - perhaps even as far as the traditional site of Troy at the entrance to the Dardanelles. During the Hittite era the kingdom was known as Arzawa and may have held political authority over nearby islands such as Lemnos.

The influence of later Greek and Carthaginian colonies in the south of Italy is well known from the historical settlements that began in the Etruscan era and survived until the Roman expansion. It may be that this has disguised earlier immigration by closely related Aegean peoples. The DNA relationship would suggest a link with the older inhabitants of Greece and the Aegean: the Minoans, Trojans, Pelasgians and the Anatolian groups, rather than the Indo-European Dorians and Achaeans who arrived later to the mainland. The Etruscans and the Minoans even look remarkably alike in their facial features and hairstyle, as we may see in their colourful frescos.

The Etruscan myths of origin remain obscure because their scripts cannot be deciphered – but those of their Roman neighbours are well known. A new theory gaining acceptance is that the Latins were related to the Trojans. [10] The Latin tribes seem to have been already established in Italy contemporary with the Etruscans and this is certainly what the familiar traditions suggest. In brief, these relate that Aeneas the Trojan fled to Italy after the Trojan War where he married the daughter of the local king *Latinus*. How many Trojans accompanied Aeneas is unclear; his son Ascanius went on to establish the city of Alba Longa where, several generations later were born Romulus and Remus: the legendary founders of Rome. The traditional date for the foundation of Rome is placed at 753 BC – and almost immediately they found themselves at war with the Etruscan cities. For a long period up to 510 BC Rome was ruled by Etruscan kings.

We may consider the migration of the Tyrrhenian colony to Umbria as an example of an *invasion*, since they established a flourishing kingdom of city-states in central Italy, retaining their culture and displacing or absorbing the local inhabitants. Although archaeologists might prefer that the Etruscans were a native non-Indo-European nation, the legend implies a substantial population influx added to the mix.

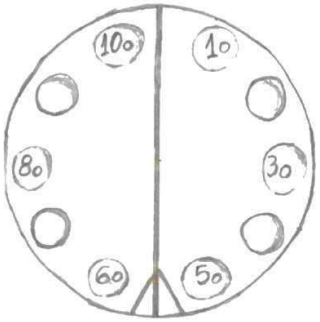
By contrast, the legends of Roman origin are best viewed as an *immigration* by a small Trojan elite who merged with the Latins, influencing their culture and language but leaving little trace in the DNA. At this distance in time, it is difficult to distinguish what was native Latin and what might have been Trojan. The later fusion with the Etruscans has blurred this relationship still further and we cannot now be sure how much of Roman culture and religion was borrowed from the Etruscans; certainly, they influenced the alphabet and numerals that we use today. Ultimately, both cultures are *Aegean* in inspiration, from their art through to their mythology.

Little is known about the workings of the Etruscan calendar save for its use in divination, but we do know that it influenced the development of the Roman calendar. It was an Etruscan king of Rome: *Tarquinius Priscus* who established the so-called 'Republican Calendar'; another Etruscan king had wanted to move the start of the year to midwinter but after he was overthrown the idea was forgotten – until Caesar's reform. The first Roman calendar supposedly introduced by Romulus himself had consisted of 10 months plus a vague midwinter hiatus; the two winter months being later additions. There were six months of 30 days plus four of 31 days (sometimes referred-to as the 'pre-Julian' calendar) making a total of 304 days, plus the winter gap. The individual days were not named, save for the markers (kalends, ides and nones). These too were Etruscan ('ides' meaning a division); originally they marked the lunar phases, but the calendar had ceased to be strictly lunar by some point in the fifth century BC.

We see here too-many coincidences. In addition to the similarities of *art* and *social customs*, we find the coincidence of comparable *spiral artefacts* and possibly the precocious development of a *solar calendar* with 30- and 31-day months at both ends of a migration legend. Could it be that the origins of the Roman and Gregorian calendar that we still use today go all the way back to Minoan civilisation or to one of their Aegean neighbours in ancient Anatolia?

A further development within recent decades has offered some clues about the Minoan calendar of the Bronze Age. In 2011, Henrikkson and Blomberg showed evidence of an alignment to the autumn equinox at the palace of Knossos. They propose that in addition to a lunar calendar, the Minoans understood the solar year with twelve solar months and a leap-year. [11] They would also suggest a knowledge of the stars adequate for navigation. Another theory is that the Minoan 'double-axe' symbol, found at various sites on the island, represented the constellation of Orion and its annual rising.

A related theory by Greek author and researcher Alexios Pliakos is that the small stone trays known as *kernoi* that are found at many Minoan sites (167 at latest count) were also a form of ritual divination calendar. [12] Archaeologists had considered the *kernos* to be a form of libation table with holes or cups to hold offerings or incense. The discs show much variation in the arrangement of the holes, which Pliakos suggests would remind the holder of the proper usage for a particular feast-day. Some kernoi have only 10 holes and a circular layout, while others have a quite different layout. The hypothesis of Pliakos is that the solar year was divided into 10 months plus a period of 5 days for festivals. He would suggest that each 'Minoan solar month' was therefore 36 days long, a figure arrived-at simply by dividing 360 by 10; however, this number has no astronomical significance. It may be that a lunar cycle was retained for religious observances (as with Easter in the Gregorian calendar) used alongside a solar calendar for more practical day-to-day matters. [13]



An example of a kernos with 10 holes excavated during the building of the Stratigraphical Museum at Knossos.
(Source: Figure 4 from the paper by Alexios Pliakos).

According to the theory, the solar year was divided into two halves, or 'seasons', with five solar months each, plus the period of five days for festivals indicated by the chevron. Other kernoi also show smaller holes that are interpreted as the special feast-days.

However, the kernos-theory would neglect that 'coincidence' of the spirals of 30 and 31 'words' as found on the Cretan Phaistos disc. If the calendar instead comprised 10 solar months of 30 or 31 days plus a hiatus over autumn or winter, then it becomes almost identical to the first Roman calendar. Similar problems find similar solutions – or perhaps the Minoan solar calendar was the prototype for them all. The sky above is the same for everyone. A common misconception among non-astronomers is that astronomy is difficult, and that some ancestral genius is required to devise a calendar. The reality is that naked-eye astronomy is easy; calendars evolve over generations from simple forms, refined by experience and necessity.

These parallels of the solar calendar, when placed alongside the DNA and the cultural similarities, may expose a Bronze Age connection between Italy and the Aegean-Anatolian region. It may offer confirmation that the Lydian migration described by Herodotus was real and that it occurred sometime between 1600 BC (the presumed date of the Phaistos Disc) and c.900 BC when the Villanovan Culture first appeared in Italy. Neither should we rule-out that migration from the Aegean islands to Italy and beyond was almost continuous throughout the earlier period of Bronze Age seaborne trade. The later Roman Empire too, was a melting-pot of cultures; an earlier influx of genetically related Trojan or Minoan colonists, from the same regions of the Aegean, would be difficult for specialists to distinguish in the modern DNA.

We must await decipherment of the Minoan and Etruscan languages to provide hard evidence of the parallels in their calendrical astronomy and the enigmatic spiral discs. In the meantime, I hope this cross-disciplinary enquiry has offered a few helpful insights that specialists would otherwise miss, without stretching the evidence too far.

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*** Note 1:** *The spiralling motion that I proposed in 1995 and 2002 was merely the Earth's Chandler wobble and the Core wobble, as known to modern geophysicists, but increased to a more significant amplitude.*

**** Note 2:** *A theory that the Phaistos disc was a calendar of 30- and 31-day months was proposed in a 1999 book called: "The Bronze Age Computer Disc".* [14] *The author took his concept a little too far, spoiling a good case with too many astronomical theories (perhaps due to pressure from the publisher to create a more marketable book). These are issues that a fellow author can understand; to paraphrase the Monty Python sketch: "who among us can say we have not made that error from time to time – I know I have!"*

Relevant Hyperlinks

https://the-phaistos-disk.webnode.com/arkalochori-axe/
https://www.tokenrock.com/explain-phaistos-discs-93.html
https://www.ancient-origins.net/unexplained-phenomena/curious-phaistos-disc-ancient-mystery-or-clever-hoax-002089
https://www.people.ku.edu/~jyounger/PHDisc/
https://www.thoughtco.com/who-were-the-etruscans-118262
https://www.livius.org/sources/content/plutarch/plutarchs-caesar/caesars-calendar-reform/
http://www.perseus.tufts.edu/hopper/text?doc=Hdt.%201.93&lang=original
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2) Dunbavin, Paul (2003) *Atlantis of the West*, Constable & Robinson, London, ISBN: 1-84119-716-5; https://www.third-millennium.co.uk/atlantis-of-the-west

3) Copeland, Mel (1981) Etruscan Phrases: Translation of the Magliano Lead Disk "M" http://www.maravot.com/Translation_Magliano.html

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5) Herodotus, I, 93-94

6) Dunbavin, Paul, (2020) The Stonehenge Builders came from Turkey: so what's new? in *Prehistory Papers*, pp 164-169, Third Millennium, ISBN: 978-0-9525029-4-4 https://www.third-millennium.co.uk/stonehenge-builders-dna

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8) Ghirotto, Silvia et al, Origins and Evolution of the Etruscans' mtDNA in *PLoS One*. 2013; 8(2): e55519. Published online 2013 Feb 6. doi: 10.1371/journal.pone.0055519 PMCID: PMC3566088 PMID: 23405165

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11) Henriksson, G. & Blomberg, M. (2015) Minoan Astronomy in: *Handbook of Archaeoastronomy and Ethnoastronomy* (pp.1431-1441) DOI:10.1007/978-1-4614-6141-8_141

12) Pliakos, A (2015) Minoan Solar Calendars Carved in Stones and the Riddle of Kernoi https://www.academia.edu/41121968/MINOAN_SOLAR_CALENDARS

13) Ridderstad, Marianna (2009) Evidence of Minoan Astronomy and Calendrical Practices https://www.researchgate.net/publication/45880446_Evidence_of_Minoan_astronomy_and_calendrical_practices

14) Butler, Alan (1999) *The Bronze Age Computer Disc*, London & New York, ISBN:9780572022174

Citation: Dunbavin, Paul (2021) The Phaistos Disc: Minoans, Trojans and Etruscans www.third-millennium.co.uk/phaistos-disc-minoans-trojans-and-etruscans

Tags: Phaistos disc, Phaestos disk, Magliano disc, Minoans, Etruscans, Minoan calendar, Roman calendar, Atys, Tyrrhenus, Tyrrhenians, Lydia, spiral calendars, Trojans

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