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One Day Every 216 Years, Three Days Each Decan. Rebirth Cycle of Pythagoras, Phoenix, Hazon Gabriel, and Christian Dogma of Resurrection Can Be Explained by the Metonic Cycle

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Abstract. This article explains how the Metonic cycle is at the base of the period of 216 years Pythagoras believed in being reborn after that period. It shows how this period calendrically is related to other mythological worldviews such as the Phoenix myth, the Hebrean Hazon Gabriel, and the Christian dogma of resurrection on the third day.

1. Pythagoras

It is well known that Pythagoras believed in rebirth. Ovid tells a story about him in which Pythagoras seeing a shield hung in a temple, claimed to remember having carried that shield while taking part in the Trojan War.

> *The soul is free from death and when it has left its former place*
> *It lives on saved in another house.*
> *I am still conscious: At the time of the Trojan war*
> *I was the son of Panthous, Euphorbus, on whose breast was*
> *Fixed the heavy spear of the second Atride.*
> *Recently I have noticed in the temple of Juno at the Abantian Argos*
> *the same shield that I wore on my left.*
> *There are only changes, nothing dies.*
> (Publius Ovidius Naso[1])

In addition Nicomachos reported that Pythagoras believed in a cycle of rebirth after 216 years.[2]

2. The Metonic Cycle

The Metonic cycle expresses almost exact commensurable periods of the sun and the moon: 19 years equals almost exactly 235 lunar months. Greek, Egyp-

[1]Website Hans Zimmermann: Publius Ovidius Naso: Metamorphôseôn liber XV, Pythagoras 160 http://12koerbe.de/pan/ovid-vos.htm

[2]Waerden, Bartel L. van der : Die Pythagoreer: Religiöse Bruderschaft und Schule der Wissenschaft - Zürich Artemis-Verl. 1979.

tian, and Babylonian astronomers all found this commensurability. Euktemon, Demokritos and finally Meton adjusted it to 6,939 3/4 days.

2.1. The Gap in the Metonic Cycle

Yet the Metonic cycle is not perfectly commensurable, because the relation of the average periods of the sun and the moon is irregular and cannot be represented as a finite fraction of integers.

If we compare the exact duration of the periods of Sun and Moon we find that 235 lunar months are about 2 hours longer than 19 tropical years:

235 synodic months of 29.530594 days = 6939.68959 days.

19 tropical years of 365.24219 days each = 6939.60161 days.

Difference: 0.08798 days

235 lunar months are 2 hours, 6 minutes, and 41 seconds longer than 19 tropical years.

Or in other words: the average moon is about 2 hours late every 19 years

2.2. The Relationship between the Pythagorean 216 Years and the Metonic Cycle

The two hours gap every 19 years leads us directly to this period, because we find that after quite precisely 216 years the average periods of the Sun and the Moon have diverged by exactly one day:

1d / 0.08798 d = 11.36622 Metonic Cycles

11.36622 MC * 19 y = 215.958 years.

Thus after 216 years one day is between the average Sun and the Moon. Expressed in a pictorial or mythical language, a new day is "born" by Sun and Moon, what may have been the cause Pythagoras believed in this period.

3. The Return of the Phoenix

There are many variations of the story of this mythical bird, which was said to have flown from the East to the City of Heliopolis on a spring day, where it burned itself to ashes, was reborn as an egg on the second day, and flew back to the East again on the third day. Also, the duration of his return exists as many different periods:

Herodotus, Ovid, Pomponius Mela, Physiologus, and Isidor of Seville report a term of 500 years; Tacitus also says 500, but also 1461 years.[3] From the tradition of Pliny the Elder are handed down three different periods: 540 years, 215 years and 660 years,[4] a period used by Medieval astronomers as the period of precession for 10 degrees, which equals one decan. In particular the number of 1461 years, the Egyptian Sothic period, is a clear hint that the Phoenix-period is related to calendars, though often the true origin of a myth is forgotten.

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[3]Website Hans Zimmermann: Der Vogel Phoenix. http://12koerbe.de/pan/phoenix.htm

[4]Philemon Holland, translator (1601): C. Plinius Secundus. The Historie of the World. Book X. (Pages 270-309). http://penelope.uchicago.edu/holland/pliny10.html

Figure 1. The Phoenix from the Abendeen Bestiary, 12th Cent. Manuscript. Folio 56r (Aberdeen University Library MS 24 http://www.abdn.ac.uk/bestiary/translat/55v.hti).

An echo of this origin and its relation to the Metonic cycle is shown by the number of 19 flames of the fire that burns the Phoenix according to the Aberdeen Bestiary.

4. The Phoenix and the Grail

Wolfram of Eschenbach told in the Epic of Parsifal of the Phoenix and the altar on which the bird burns itself to ashes and called the altar "lapsit exillis" (yon fallen?, or stone from heaven?), naming it the grail.

There is living a crowd which resists courageously
I will tell you what nourishes them:
They are living from a stone
whichs nature is very pure.
If you do not know it,
it is told you now.
It is called "lapsit exillis".
By the power of this stone the
Phoenix burns, becoming ashes:
but these ashes are giving him life,
and after that, he shines brightly,
being more beautiful than before ...
he saw the stone 200 years,
and his hairs grew grey.
Such a power this stone gives to men,
that for flesh and bones
they can receive youth in a special way.

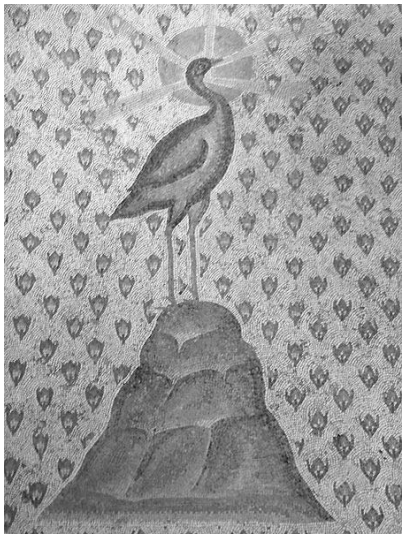

Figure 2. Mosaic of Phoenix on the altar. Pavement mosaic (marble and limestone), 2nd half of the 3rd century CE. From Daphne, a suburb of Antioch-on-the-Orontes. Now in the Department of Greek, Etruscan and Roman antiquities in the Louvre, Denon, ground floor, room 30. Image from Wikimedia: http://commons.wikimedia.org/wiki/Image:Mosaïque_Phénix_01.JPG.

This stone is called the grail.
(Wolfram von Eschenbach) [5]

A 3^{rd} cent. mosaic pavement from Antioch shows the Phoenix' altar with 19 stones. If you imagine it as three-dimensional it has the number of years in the Metonic cycle. (1 + 2*2 + 2*3 + 2*4 = 19).

It is a fact, if a Metonic cycle starts in a certain year when the vernal equinox coincides with a new moon, then exactly 630 years later, the new moon again appears at the vernal equinox. Comparing the years 1370, 2000 and 2630 CE proves the full moon occurs in these years on the day of the spring equinox.

The Phoenix ritual may have these bases. After more than 600 years, when a certain decan star, due to precession of the equinoxes, has lost its function of dating the vernal equinox and the 19-year tables were misdating lunar phases already three days, the priests of Heliopolis have to search for a year when the vernal equinox coincides with the new moon. This happens to occur exactly 630 years after the start of a Metonic cycle (or also after every 19 years). Then the priests anticipate with much hoo-hah the old moon, the tiny sickle-moon. This is the day when the Phoenix arrives and is said to burn itself on the altar (the sun). There follows one day of rest, which is actually the conjunction of the sun and the moon (described as an egg and a little worm). On the third day, the Phoenix leaves Heliopolis, and a new proper 19-year-cycle starts.

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[5] Webseite Hans Zimmermann: Wolfram von Eschenbach, Parzival IX, Trevrizentbuch 471 ff. http://12koerbe.de/lapsitexillis/trevriz.htm#stein

Figure 3. Sculpture of the Phoenix in Austrian monastery Neuberg. The description under the sculpture reads: *The Phoenix, which becomes young again by burning itself, was already a symbol of resurrection in early Christianity. After Physiologus, it symbolizes the death and resurrection of Christ according to his divine nature.*

5. Hazon Gabriel

There exists a Hebrew parallel of the 3 days of the Phoenix, the so-called Hazon Gabriel, a 1^{st} cent BCE text engraved on a stone, the report of which recently was published by Ada Yardeni[6] and Binyamin Elitzur.[7] The stone text conveys the apocalyptic vision of the Archangel Gabriel, saying: "The archangel is ordering the prince of princes to rise from the dead within three days."

6. Solar Utopias

Other ancient examples of solar utopias are Iambulos' narration "The Islands of the sun" and the revolt of Aristonikos, who called his followers heliopolitans.

7. Christian Phoenix Myth

The dogma of three days of Jesus Christ's resurrection is likely based upon this myth or is a syncretic transformation of the Phoenix myth. Thus, in medieval times, the Phoenix was considered to be a symbol of the resurrection of Christ. A sculpture and a fresco of the Phoenix in an Austrian and a Spanish monastery show this connection.

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[6]Ada Yardeni: A New Dead Sea Scroll in Stone?. Biblical Archeological Review

[7]Knohl, Israel: "By Three Days, Live:" Messiahs, Resurrection, and Ascent to Heaven in *Hazon Gabriel* and in the Dead Sea Scrolls

Figure 4. Allegory of resurrection and the Phoenix. 11th cent. fresco, Diocese Museum of Solsana, Spain.

Figure 5. The Phoenix by Per Krogh, UN Security Council Chamber.

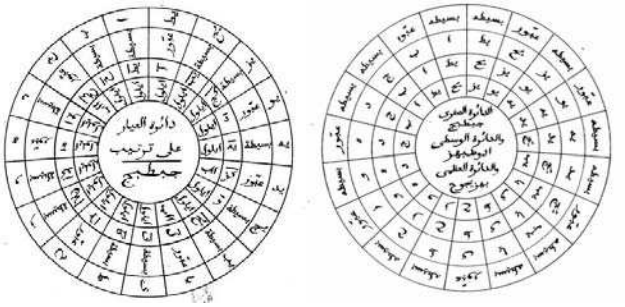

Figure 6. Illustration of the Metonic cycle by Al Biruni (Al Biruni: Chronologie orientalischer Völker von Alberuni. Herausgegeben von C. Eduard Sachau. Brockhaus. Leipzig 1878).

8. Modern Echo of the Phoenix

The symbolic power of the Phoenix has mighty political effects down to the present day. A major feature of the UN Security Council Chamber is the oil canvas mural painted by the Norwegian artist Per Krogh. It depicts as central subject the Phoenix rising from the ashes as a representation of the world being rebuilt after the Second World War.

9. The Metonic Cycle by Al Biruni

Two graphical descriptions of the Metonic cycle by Al Biruni show impressively the 19 sections of this cycle.

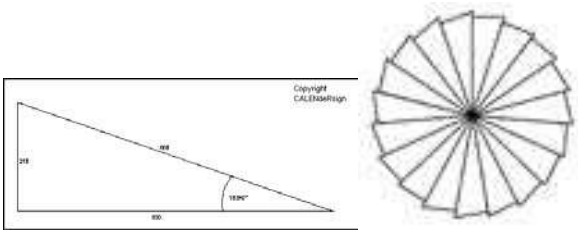

Figure 7. Pythagorean triangle with the sides 216-630-666 and 19 of this triangles forming a cycle.

10. The Metonic Cycle of Pythagorean Triangles

The graphics of Al Biruni resemble a description that was found in a private family document, to which the author owes the incentive for this research and his interest into calendars. This document shows a perfect Pythagorean triangle with the sides 216-630-666 with the number 19 inscribed on it. The graphic was entitled as the "Gradal." Please note that the sides of this triangle represent the rebirth-period of Pythagoras, the perfect cycle of the Phoenix, and the medieval value of precession for one decan (10°). In fact, the difference between the tangent of the triangle forming the regular 19-sided polyhedron and the fraction of 630/216 is less than one-half per thousand.

$Tg(360°/19) = 0.343300; 630/216 = 0.342857; Difference : 0.000443$