

Five

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September 13, 2004

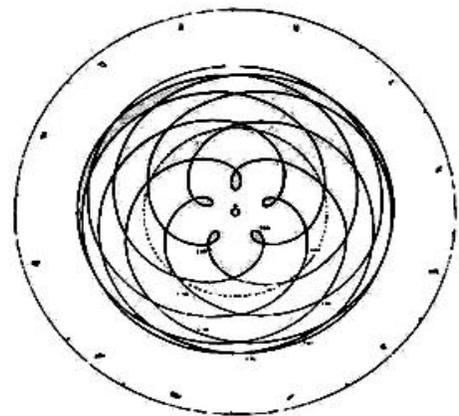
Imagine this: We just climbed a rocky path to the top of a hill. We came here tonight on foot from scattered fields we seeded on the morning of a spring new moon, hoping for the good harvest she did in fact give us about two months ago. Autumn ends tonight; tomorrow will be the first day of the sun's journey back to the north. We gaze at the night sky and see the curved dome of stars hanging above us in its net of shimmering vapor like the vaulted ceiling of a cathedral. A galaxy in a universe of galaxies is inconceivable. We know nothing about the true dimensions of the sun and moon. What we "know" is that they're magic-like, earth-concerned orbs that revolve consistently around us, just out of reach.

The beauty overcomes us. And we talk, as we have so many times before. We resume the game of puzzling how, just exactly how, something so perfect could have been made. Because if we can figure it out, if we can measure and predict the substance of this creation, we might discover how to build such exquisite things ourselves.

Our driving question seems to be: why is anything what it is? Searching for answers, we recall relationships in universal patterns we've discovered and studied: lines, angles, circles, and cycles. The golden sun, its steady journey from east to west, and its power over life and death. The ever-changing silver moon, and its power over women. The seasons, the dark, the light. The dying and birthing of plants and animals. The structure of the motionless minerals. Even our beliefs about all this.

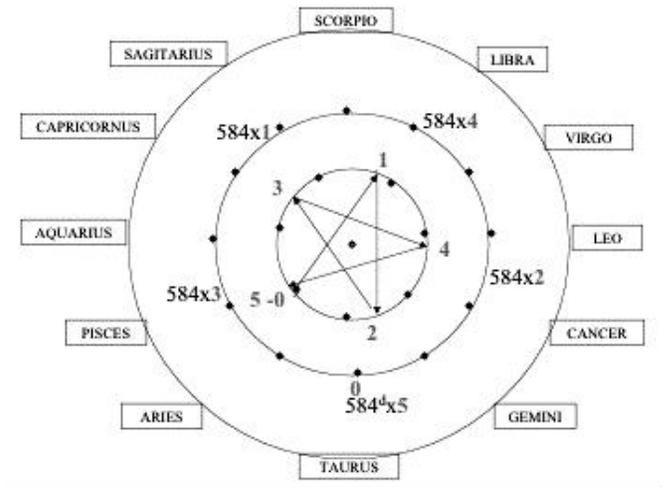
In fact, we believe every form of every thing, including ideas and dreams, is a sourced, effect-ive expression that language-capable human beings can interpret and comprehend. We believe these symbols contain answers to our questions, and that many answers are encrypted in numbers. We puzzle over how to translate intriguing patterns of twelve, for example. A single orb (such as earth) can be exactly surrounded by twelve same-sized orbs (from earth, what we believe to be the cosmos). It takes about twelve earthly revolutions around the sun to complete childhood. And certain combinations of sounds from a certain set of twelve strike human ears as pleasant symphony.

And what about that one star, the one who moves so fast and shines so brightly, she's often visible in the light of the evening and morning? Our elders taught us to "follow" and predict her path countless summers ago. We know, at the end of this long night, she's going to rise in the east. And, for the first time in eight years and five days, we'll commemorate this star-rise as the point at which she finishes weaving her five-petaled flower in the sky and begins again.



An artistic calculation of the eight-year path of Venus (V-ness?) as seen from Earth.

Venus's flowing "flower petals" are each drawn in 584 days.



So tonight we talk about what Venus's message for us might be, and explore what in our world corresponds to her heavenly pattern of five.

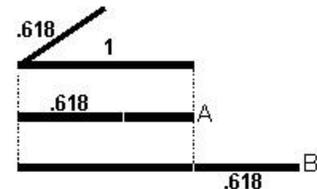
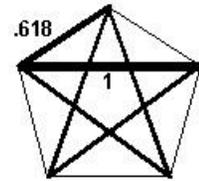
We find that number in the shape of many leaves, flower petals, the core of fruit those flowers bear, and on the miraculously nimble hands we use to pluck it for our use. We count our five senses. We notice when we multiply five by any number, another pentad is generated.

In the lines of Venus' pentagram we see motion, tension, and structure, like thread weaving designs on a loom, and like plants producing life with their outstretched leaves. We see balance, restraint, and harmony without excess or disproportion. We see strength, courage, order, loyalty, and pride; the pentagram might even resemble us, standing tall with extended arms, hands, legs, and feet. In the upper triangle would be our intangible spirit that flows as a force of energy through our heart and extremities up into the light of heaven and back. The four lower triangles would be the tangible matter we, and those stars, are composed of: the elements earth, water, air, and fire. Maybe this image of symmetry, regeneration, unobstructed flow, tangible matter, and intangible ideas is a representation of a perfect form of ourselves: conscious, creative, living beings of matter and spirit shining in a conscious, creative, living universe of matter and spirit. And in this universe, where the seed of everything is in everything else, maybe Venus is pointing out that we not only inhabit the cosmos, the cosmos also inhabits us. Maybe, if we can accurately translate her message into the symbols of our own language, she's saying we're a "micro"cosm of the great cosmos itself.¹

So we keep looking for more messages in fives. We replicate and measure the pentagram and discover a ratio of 1 : .618... occurs repeatedly. Five times, that is. The Greeks will spell this ratio *phi*² and notate it with the symbol ϕ . One day, it will be discovered it can be expressed mathematically like this:

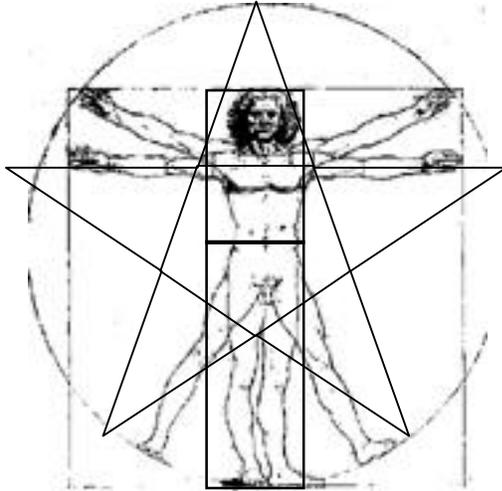
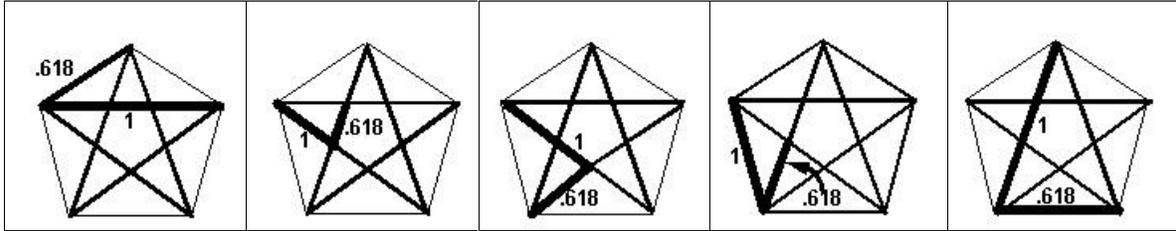
$$5 \wedge .5 * .5 + .5 = \phi$$

The Golden Ratio or Golden Proportion.
The ratio of the two lines that comprise line A is equal to the ratio of the two lines that comprise line B.



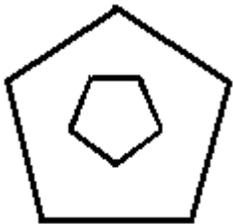
¹ For perhaps thousands of years, soldiers have been disciplined to stand square, straight, and tall, and to "salute." Today, we still see pentagrams on the U.S. flag, and the uniforms and ordnance of U.S. soldiers. Maybe the country's founders hoped that faceless star would guide us to defend and exalt the great potential of every human rendition of the cosmos? It's an excellent symbol for humanism, in any case.

² I wonder if *phi*, possibly in combination with *logos*, could be the etymological origin of the Greek word-root *philo*. Also interesting, if not conclusively related: file, filament, fiber = thread. Filigree = lace. Greek *phyllo* = leaf (five-shaped leaves and five-leaved stems, such as on rose bushes, are common). There are five chemical forms of chlorophyll (the greenness in plant cells). And the largest political subdivision in ancient Athens was called a *phyllo*.



We look to see if proportions of the microcosm conform to the ratio of *phi*, and sometimes they do:

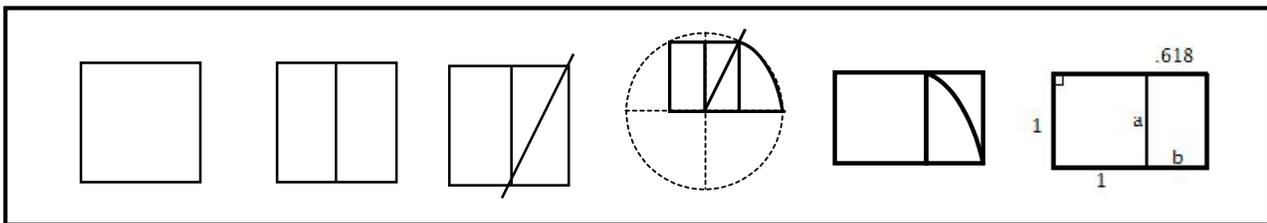
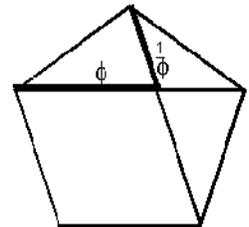
-) The hand to the forearm.
-) The forearm to the whole arm.
-) The foot to the calf.
-) The distance from the floor to a person's navel to the distance from the navel to the top of that person's head.



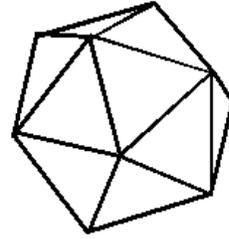
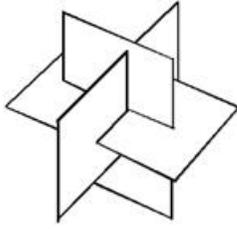
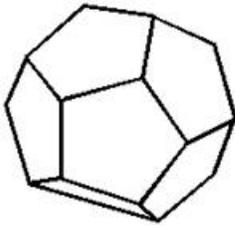
We reconstruct and deconstruct the pentagram and find two pentagons that look like an outer chamber protecting an inner chamber.

And again we find the golden ratio.

We explore, experiment, design, and build with *phi* and its proportions.

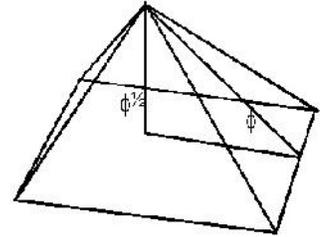


How to draw a "golden rectangle," also known as an "auron." The formula $(a+b)/a$ from the notation in the sixth frame is a mathematical way of saying "the golden ratio." Some people think dimensions of the Parthenon and other architectures and art are based on the golden rectangle.



We find the centers of the twelve pentagons that form the faces of a dodecahedron, and the points of the 12 triangles in an icosahedron, meet the corners of three golden rectangles when their centers are at 90-degree angles to each other.

We find *phi* in *py*ramids. We find it, and the number five, in the *physics* of music. On the twelve-note scale, *phi* corresponds to the fifth note, and produces a harmony with the octave and third that's so pleasing to human ears we call it a perfect fifth.



Our inquiries and observations change our work.³ Our work changes our world and gives rise to a tradition of wisdom.⁴ So that our collection of observable truths might survive ridicule, greed, war, ignorance, jealousy, and superstition, we invent ways to quietly protect and develop our collection of knowledge, and to teach it to worthy students. We take the pentagram as the symbol of our tradition (on *pendants*, for one example), as will one of the most influential and pioneering thinkers in history, Pythagoras, as well as, later, the great healer Hygeia, whose practices will be adopted by the Romans, and whose name will be changed by them to Salus.⁵

We discover five and *phi* in the characteristics of a pattern of numbers.

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233 . . .

The Fibonacci Series. Each number after the first 1 is the sum of the two before it.

The ratio of each contiguous pair in the series is very close to *phi*⁶. And every fifth number in the series—5, 55, 610, 6765, etc.—is a multiple of 5. And dividing any

³ The height of the Great Pyramid of Giza, in proportional relation to its whole, is reportedly the square root of *phi*.

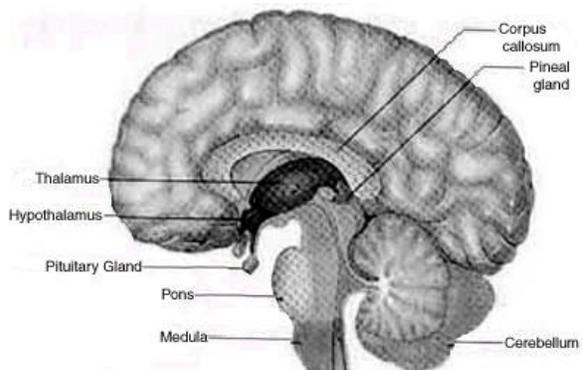
⁴ Magi, magnet, magic, magnus, imagination, magnificent...

⁵ I find myself wondering if **Hygeia**, so closely linked to the Roman greeting that derives from the word "salus," is the origin of the English greeting, "Hi." (A sporting high-five will just never be the same to me now.) Also wondering about the guiding principle of Hygeia's methods, i.e. cleanliness and balance, and the word "physic" which, in the parlance of hygienic health, is something that cleanses the digestive and circulatory system to restore the body to balance, wholeness, and health. Remove "phy" from "physic" and what do you get? "Sic" (origin of English "sick"?), perhaps from *sequi*, as in both the sense of, first, words like "secant" and "sect," which are partitions of a whole, and second (*second*), the sense of "following," which is what members of sects do: adhere to modes that differ from the whole they're a "cut" away from. I wonder if "physic" originally meant something like "offshoot of, or modeled after, *phi*."

⁶ Leonardo Fibonacci, 12th century of the Christian Era, is credited with this discovery. I read he added two letters to his name because he was the son of (and I add: faithful to, offspring of) his father whose name was Bonacci. The Latin word *fieri* (*fiat* its subjunctive form) means "to be," "to be done," or "to become." *Fi* = faith. *Filius* = son.

number in the series by the preceding number gives you something very close to *phi*. For example, 5 divided by 3 is 1.666..., and 8 divided by 5 is 1.60.

We find a link between *phi* and the motions of the fiery sun. We know that life-giving "planet" (whose color and associated metal is gold, a.k.a. "*aurum*") completes its cycle around the earth in a very hexagonal mathematical symbol: just under 366 days. That's why it's our tradition to count 365 days in every completed sun-cycle for three consecutive cycles but, every fourth cycle, to add one more day and call this year, the one with 366 days, the "ruling year." In studying nature's cryptograms, we discovered the number 3.1416309 is the ratio of every diameter to the circumference of its circle, named that number *pi*, and now, in our study of patterns of five, look to see if *pi* corresponds to the sun's 366. We find when a circle's circumference is 366, its diameter is 116.5. Doubling them so we can eliminate the fraction, we get 732 : 233. And we remember 233 is the 13th number in the series of 1.618-related numbers (see the bottom of the preceding page).



More, the square root of any sequence of numbers in the series added together equals the last number in that sequence times the number that follows it. This is the basis of nature's formula for her ubiquitous logarithmic spirals.⁷ Some natural spirals are: sea shells⁸, galaxies, sunflowers, spiral-shaped *pine*-apples and *pine* cones, and the similarly shaped *pineal* gland⁹—which is fortified deep in the middle of the skull of vertebrates directly behind the eyes, affected

(controlled?) by light, and sometimes called "the seat of consciousness," "the third eye," and "the dwelling of the soul." And we wonder: is the sun-sensitive spiral that emits and harbors our consciousness static, or is it spiraling still? Is all of human consciousness unconsciously and physiologically spiraling upward?¹⁰



We do know three conscious steps can lead to the winding path of spiritual growth. The first is awakening from blindness—that is, living in denial of the inquiry, as if the path to growth and the pursuit of truth aren't there. The second is giving up the temptation to scorn the path after it's discovered. The third is what lies beyond recognizing the choice of taking the path or not, and embracing the challenge: daring to look at what light reveals, especially in a mirror when you stand before it, see your imperfect being reflected there, and call on your own creative capacity to rise and shine like the divine fire in every human being can.

The golden spiral.



The night has ended. Winter's here. That star is rising with the sun now. We put aside the delightful myths and legends of our day. We follow it in search of wisdom.

⁷ Great article about the Fibonacci phenomenon: <https://math.temple.edu/~reich/Fib/fibo.html>

⁸ 25 spiral seashell photos are available at http://www.xahlee.org/SpecialPlaneCurves_dir/Seashell_dir/index.html.

⁹ DNA too, though I'm not really sure if it and sunflowers and the pines mentioned spiral logarithmically, as shells do. But they seem to grow, twist, and reach for the sun because, like bright golden sunflowers, they love (that is they "pine for") light.

¹⁰ Phi. Fire. Spiral. Spirit. Spire. Inspire. Respire. Pyramid. Pine. Philo. Physic. Fi. File. Filial. Fiat. FiVe. (Fo. Fum.)