

Laodicea health altar and analogies in ancient medicine

Laodikya sağlık sembolü ve antik tıpta analogjiler

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Abstract

Purpose: The purpose of the study was to investigate the bas relief impressions of compositional, structural, figurative meanings of the medical school represented by the Laodicea health altar created in the time of Emperor Caesar Augustus (27 BC–14 AD).

Materials and methods: The golden ratio, the proportional geometry and the structure used in the Laodicea Health Altar's intricate relief were analyzed to find out the analogical relation between mathematics, nature and physics in the development of medicine in this time of melding Greek, Egyptian and Turkish science and philosophy.

Results: It's clear that applications of Egyptian geometry and the integral use of the Golden Ratio on the Laodicea Health altar is considered as the measurement systems. At the same time, Laodicea's medical school used the scientific analogy of the human body, proportions of nature and the golden ratio not only applies to architecture and nature but also to the universe, the human body and medicine.

Conclusion: The discovery of this altar proves that Laodicea and Turkey were at the forefront of the movement from mythos to logos in developing hard science in the medical field as it combined mathematics, physics and the Golden Ratio into medicine.

Key words: Laodicea health altar, ancient medicine, analogical reasoning, mythos to logos transition, golden ratio.

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Özet

Amaç: Çalışmanın amacı, İmparator Sezar Augustus (M.Ö. 27–M.S. 14) döneminde oluşturulan Laodikya sağlık sunağı tarafından temsil edilen tıp fakültesinin kompozisyonel, yapısal, figüratif anlamlarının temel izlenimlerini incelemektir.

Gereç ve yöntem: Laodikya'da Sağlık Altar'ının girift rölyefinde kullanılan altın oran ve orantılı geometri ve yapısal özellikleri, Yunan, Mısır ve Türk bilim ve felsefesinin kaynaştığı bu dönemde tıbbın gelişiminde matematik, doğa ve fizik arasındaki analogik bağlantıları bulmak için analiz edildi.

Bulgular: Bu incelemede Mısır geometrisinin uygulamaları ve Altın Oran'ın Laodikya Sağlık sunağı üzerindeki bütünsel kullanımının ölçüm sistemleri olarak kabul edildiği açıktır. Aynı zamanda, Laodikya'nın Tıp Fakültesi, insan vücudunun bilimsel analogjisini, doğanın oranlarını ve altın oranı sadece mimari ve doğa için değil, aynı zamanda evren, insan vücudu ve tıp için de kullanmıştır.

Sonuç: Bu sunağın keşfi, Laodikya ve Türkiye'nin, matematiği, fiziği ve Altın Oranı tıpta birleştirerek tıp alanında temel bilimlerin geliştirilmesinde mitostan logosa hareketin ön saflarında yer aldığını kanıtlıyor.

Anahtar kelimeler: Laodikya sağlık altarı, antik tıp, analogik düşünme, mitostan logosa geçiş, altın oran.

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Introduction

'When health is absent, wisdom cannot reveal itself, art cannot manifest, strength cannot fight, wealth becomes useless, and intelligence cannot be applied.'

Attributed to Herophilus

In 2019 AD, Prof. Dr. Celal Şimşek, who is an archeologist and head of the Laodicea Excavations for Pamukkale University, discovered the Laodicea Health Altar (Figure 1), a powerful artifact of history that stayed silent and buried under ground for over 2000 years. This altar revealed the connection between the mythos medicine of the ancient Greeks as it transitioned to and melded with the scientific logos mind of the Romans as the two worlds synthesized and together created powerful insights into modern medicine [1].

Symbols like the Laodicea Health Altars were meant to serve as analogical or metaphoric figures to help humans perceive the connections with reality behind surface impressions of compositional, structural, figurative meanings of the reliefs, these natural figures so neatly and precisely carved on these stones in ancient times [2-4]. Within the relief of the Laodicea Health Altar there is a great story based on the Herophilus Medical School in ancient Laodicea, where legend holds that Herophilus founded a school strongly based on historical development

of the transition from mythology to analogical scientific reasoning and methodology practiced in modern medicine [5].

Aims of the present study are to analyse and obtain all these above mentioned scientific transition story carved on the Laodicea Health Altar.

In ancient Laodicea, Turkey, scene of the last of the seven churches mentioned in the Book of Revelation, there was an enlightened medicine school that obtained its perfection under Themison of Laodicea. This is the medical school where the powerful Laodicea Health Altar was created. Analyzing the scientific analogies of the altar, this article will reveal how the medical school led the transition process from ancient Greek science and history, the stories of gods, goddesses, and heroes (mythos) to that of the Roman Empire through the gradual development of pure science, rational philosophy and logic (logos). In that respect, the golden ratio, the proportional geometry and the structure used in the Laodicea Health Altar's intricate relief were analyzed to find out the analogical relation between mathematics, nature and physics in the development of medicine in this time of melding Greek, Egyptian and Turkish science and philosophy. These are the first interpretations of Laodicea Health Altar foreshadowing modern medicine.



Figure 1. Laodicea health altar

These are two of eight altars designed in ancient times (approximately 27 BC-24 AD) discovered by Professor Celal Şimşek in 2019 at Laodicea from the Herophilus Medical School. This was one of the first schools to separate medicine into different professions https://denizlilyim.com/wp-content/uploads/2016/10/laodikeia-saglikla_ilgili_altar_kabartamasi.jpg

What was the hidden science behind that mysterious Laodicea Health altar?

Hidden in these altars are powerful secrets and information that the marble kept safe and alive for years despite repeated burning, melting and destruction of the ancient city. These carvings represent a shift from the idea of metaphors and mythos of the Greeks to the idea of more visual analogies on the geometrical and algorithm foundation of modern science's base mathematics, the golden ratio. The composition of the figures and each of their dimensions and their alignment reveals the meaning of overall geometry and the system of it. The altar's bas relief transfers and translates the information and ideas of the era it represents to modern medicine.

What ideas and the information of the era does the altar represent?

First, the human mind has always favoured visual content over words. Images were the first means with which humans began to communicate. Often these expressed symbolic meanings that today are our best and only hints at history. These two historical Laodicea altars were carved as a form of communication responding to different frames of references in emerging thought: sharing inner or outer experiences in medicine and science, often using dogmatic, empiric or methodical means of transmitting social, religious, or cultural values while promoting messages or products, entertaining, explaining natural phenomena or talking about a certain natural event or human body. They were designed to be exhibited, to support the system of observation which creates the motivation underlying the images in this visionary medical school.

The relief of this Laodicea marble altar presents drawings that align geometrically with mythos and logos as science began to synthesize these two schools of thought. The base geometry of the altar aligns the composition of the natural figures systematically. The composition of the figures well aligns the meanings analogically. This invites the other question: How were these analogies meant to make a point about the latter vision by use of the former thought? How did these two philosophies of religion, mathematics, astronomy, physics, medicine, chemistry blend together as the

Laodicea Medical School attempted to preserve and synthesize both wisdoms.

How in fact, was this altar meant to make a point especially about the medicine by use of all these natural figures carved on it?

Mythos to logos: the emergence of analogy in ancient science

In the earliest, "mythos" stage of human development, Greeks saw natural phenomena as being caused by clashing personalities of gods and goddesses, (mythos) and created highly imaginative narratives and stories to support their visions and theories. Interpretations of the first origins of the universe were mythological explanations, passed down in ancient texts. In later Roman times, however, especially in the time of Emperor Augustus (27 BC-14 AD) [6, 7], natural events were explained by impersonal natural causes, which were transformed and translated by more logos or scientific analogy.

The Laodicea Health Altar was crafted in this important transitional era where thought moved from mythos to logos and presents detailed analogical information as a symbol of the scientific and philosophical mindsets of the era, opening doors to the realm of both the philosophy and the science, revealing multiple meanings from multi-dimensional perspectives. In that respect it is important to question and observe the synthesis of philosophy and science of the ancient time in which these altars were designed. Understanding mythos and logos provides insight into the analogical reasoning scaffolding that underlies the analysis of the philosophical and the scientific origins of the time.

In this context, it may offer modern physicians and scientists possible hints to integrate the spiritual, symbolic, structural, functional, casual analogies often foreign to modern allopathic medicine. This is increasingly important as mankind attempts to reintegrate the mindset of nature into the world of medical science and health. It can also help heal the rift between science and spirituality.

Mythos:Dogmatism/Rationalism,Empiricism in medicine

Dogmatikoi epilogismós

Mythology, literature, and religion can serve as a lens for better understanding what a culture (or cultures) considers important, including natural figures, beliefs and meanings. An exploration of Asia Minor and the surrounding mythologies of Greece, Rome and Mesopotamia highlights the use of transcendent symbols often used in converting story to science, most importantly natural figures like snakes, raven (*corvus corax tibetanus*), laurel tree (*alanza laurus nobilis*), earth, world, lion's feet and columns etc. Asia Minor, known for its rich history of weaving together discerning and nurturing myths, was open to creative thought, thought that became a basis for scientific theories opened up by inventions and discoveries. At that point a new question arises: How certain classical civilizations utilized those and other natural figure imageries?

Literature also reveals a wide range of multilayered views and those imageries on how certain classical civilizations utilized those and other natural figure imageries. Snakes in particular have held multiple and multi-layered meanings for mankind, starting with Adam and Eve's serpent in the Garden of Eden to the symbol of modern medicine [8]. In that respect, analysis of snake imagery and metaphor and the power associated with them allows us to understand the ancient connection between humans and snakes, rebirth and renewal [9]. Prior to the Romans, Greeks applied snake power to mythologies in both positive and negative manners. For Medusa the goddess whose hair was made of snakes, she is a taker of life, but in her death, she provides life. Aesclepius snakes had the ability to heal and remove the illness from the body [10]. Of course, these mythologies would then influence Roman mythologies and in the Roman cult coming from the previous dogmatic Greek belief system, natural figures embodied the mother goddess and made the connection between birth, life and death explicit. In Mediterranean cultures snake or serpent imagery is ingrained with its shedding of skin to reveal renewal and new life. Snakes were seen as bringers of death and antidotes as the vehicles of what is both benevolent and malevolent. That's why snakes were a common

symbol to the ancient Greeks and Romans, showing the healing and destructive power associated with these reptiles as well as the fear and awe they elicit [11].

Snakes as images of the divine embodied the power of kingship as well as the power to overcome death. They were the symbols of yin yang that carries energy up through the body and connects the physical and spiritual realms aligned with the entire multiverse and with the cosmic intelligence and as Descartes stated in the essence of spirit, at the pineal gland namely to serve as a support for blood vessels and blood circulation [12].

Logos: methodism in medicine

Analogismós

Logos is more a function of the left-brain based logic than mythos, which is more right-brain based on metaphors and imagery. Logos thought gave medical scientists and physicians a more concrete base of understanding of both body and brain dynamics than mythos. In synthesizing mythos and logos, the Laodicea Health Altar is a symbol of historic and emerging schools scientific thought at that time. It is important to understand how this was developed in the times of the half century before 0 AD, and how these analogies were transferred to the knowledge of medicine supported by a concrete base of logos understanding of scientific experiences.

Primarily, ancient mythos meant contemplation of the central topics like the creation of the world, fundamental substances, and the mythological order behind everything in nature. At that time, medicine was strongly linked to religious views [13]; the harmony and order seen in nature were considered as the laws of nature which could be opened to human conception towards scientific experiences and methodism in mathematics, geometry, astronomy, physics and music. Now the question is how this mythos to logos, dogmatism to methodism, transformation happened. How did scientific developments help shape the way ancient people thought?

In Laodicea and surrounding countries, ancient philosophers began to observe the universe not just on the planetary coordinate system but made calculations of spatial and

volumetric systems, ultimately challenging conceptions and beliefs about the nature of the external world and medicine. Early philosophers had used the ideas of Aristotle and Ptolemy to form a geocentric theory of the universe. In this early conception, concentric spheres surrounded the fixed or motionless earth. From Thales to Ptolemy the center of the antique world was the Earth, (the geocentric model) surrounded by circles of the Sun, the Moon, the planets and the fixed stars [14].

Building on this information, ancient Turks thought the universe took the form of a dome rotating at a uniform speed around an ecliptic wheel with a pole of gold or iron perpendicular to it [15]. Likewise, the Egyptian's developed the Sun calendar which is the same system moderns use today. They were well aware of rotational movement of the spheres around a center fire [16]. Those analogies all brought the idea of the art of science and art of medicine in connection. It was not until Copernicus in 1542 and Galileo in 1642 that the current idea of planetary motion evolved from the antiquated geocentric planetary alignment to the current heliocentric (sun-centered) model, but this gave the essential idea of heavens and planets in rotation. In medicine, divine motion analogy gave the idea of the human body being an operative, interrelated, autonomous, purposive, and continuously circulating system. Analogy was the most essential reasoning system that is the base of relational thinking and reasoning. It gave rise to information transfers among different scientific domains connecting multiple worlds especially in medicine.

Analogy in medicine- from metaphor to data

The use of analogies within ancient science has been a long-standing and well-respected practice widely used by physicians, engineers and scientists. In ancient times, before the advent of data-driven science, naked eye examination was the basis of medical details and served as teaching aids enhancing memory retention for local based medicine scientists [17]. Analogies that refer to especially anatomy of the human body come in several forms. Some ancient writers, like Empedocles and Alcmaeon, used analogy in a more generalized manner, as in the comparison of the human body to natural phenomena [18]. Scientists perfected their art by utilizing the existing body of knowledge

about a familiar source domain in medicine as well, transferring the information to an unfamiliar target domain [19, 20].

In medicine there exist two situations where some analogies were non-familiar in local environment culture where people had no exposure to elitist culture or familiar that refers to aspects of the outside world everyone knows. In ancient medical history the Hippocratic Corpus, Herophilus, Galen often relied upon this method, serving to create an image for the reader while also teaching vital information. In ancient times people were meant to apply dogmatic treatment methods that they knew. In that respect, Herophilus saw familiar natural world analogies as vital to expand medical knowledge speaking to a less specialized wider audience [21].

As science and engineering were developing, especially in Greek and Roman times, Herophilus was drawing a broader range of more familiar natural world analogies to transfer multiple approaches to the identification of a complex body parts information in the non-medical world. On the contrary to Herophilus, Galen used a more direct, but also more restrictive form, of non-familiar human animal analogy [22]. He described his observations of the body using animal analogy, assuming readers had a strong knowledge base on animal anatomy and physiology, and therefore likely some skills in dissection [23]. Although dissection was a common practise performed by a large number of physicians, his use of narrower domain analogies suggests that he was speaking to a more specialized audience.

Laodicea Health Altar relief is a reflection of this method of describing bodily processes and the structure of body parts in relation to natural world events, creatures and materials, including rocks and trees, birds and beasts. As always, nature is the body's most powerful healer, and doctors both ancient and modern who align and adhere with this principle are often the most successful at using minimal surgical and medical intervention to aid nature's healing power [24]. Additionally doctors are not just the healer but they have responsibility to create a doctrine for a more healthy environment and develop more awareness.

Scientific revelations and analogical reasoning methodology of that era gave rise

to the idea of the heart as the center of the circulating system. The Laodicea Health Altar included a vision of the heart in its relief (Figure 2), showing the school's integrated understanding of the human body and the basis

of all natural sciences. To build this simple but ingenious altar as it combines mythology and science showed the importance of Laodicea as an important center of natural and allopathic medicine.

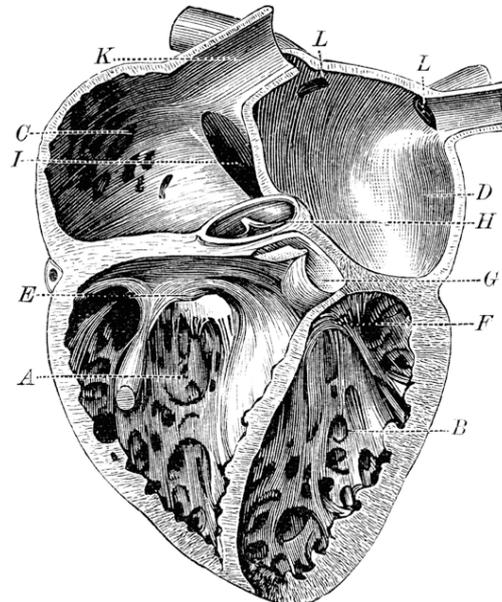


Figure 2. Vitruvian heart

Source: Steele, Joel Dorman Hygienic Physiology (New York, NY: A. S. Barnes & Company, 1888) <https://imgbin.com/png/U9hC5s1m/vitruvian-man-heart-human-anatomy-human-body-png>

Laodicea health altar: connecting multiple worlds

As the crossroad between Greece, Egypt, Europe, India and China- basically where East meets West- Asia Minor was also a center of information transfer, particularly in the transition from mythos to logos. The development in mathematics, geometry, physics, astronomy and in medicine brought the idea of centrality, and the divine motion around, and finally the idea of systems. That may be another reason why in 30 BC, the Romans strategically captured Alexandria and came to dominate the known world in engineering and commerce. The Augustan-era philosopher Strabo termed Rome as the 'greatest emporium in the world' [25]. With Rome's focus more on managerial activity than creative expression, Rome combined the logos side of scientific activity with a great engineering system, linking ancient and new cities by roads and bridges as they established Rome as *'the heart of the world'* [26].

By this measure, Rome would be the heart of the world as other market cities would geographically surround it and allow money and commerce to circulate throughout, much like the human bloodstream. By idiom, this is

portrayed as "all roads lead to Rome" [27]. In the illustration below, the heart cavity is seen as the center of Laodicea health altar, just as Rome was seen as the center of the known world [28]. On the mindset of the altar these are the meanings settled when the dome is seen as the world. If the dome corresponds to the concept of the universe, then the meaning of the heart may refer to the centrality and the divine motion around it. If the dome is seen as the brain the meaning of the heart changes. On the Laodicea health altar the heart carving relief is so remarkable that the raven represents the arterial blood as it reflects the light on its positive articulated surface and dirty blood is represented with a negative articulated shadowed surface. The head of the raven being directed to the dome may refer to the arterial blood being connected to the brain (Figure 3). In mythology raven a most clever species ever is the representation of mind, memory, creativeness, healing, prophecy, wisdom, introspection, divine mind, regeneration, stability, higher consciousness, finding peculiar light in the darkness, being in between two worlds. Those are figures are mostly used on the other altars of the era (Figure 4) as the symbol of health, wealth and power and unity.



Figure 3. Overlap of this illustration shows the heart cavity in the relief of the altar



Figure 4. Gens Augusto altar (on the left side) & Actium Apollon altar (on the right side)

In these two similar reliefs, both of these altars were built in the time of Augustus that makes reveal the above mentioned idea indicating the similar figures carved on them. The first is Roman, with Gens Augusto Altar Source: <https://books.openedition.org/efr/5733-victoria> on the right hand and sitting on the weapons. On the right is the Greek symbol, Actium Apollon Altar-laurel branch in the right hand and three feet symbol of power, wealth and health Source: <https://www.cointalk.com/threads/statue-of-actian-apollo-on-sestertius-of-gordian-iii.310964/>

The golden ratio

In ancient times, some scientists were well aware that there existed an analogical relationship between the universe, the earth, nature and the human being, and they found a way of proving this relationship in the Golden Ratio. These all exist with certain proportions and with certain patterns found in nature's algorithm. This means there exists a certain

proportional repetitive isomorphic pattern, from micro to macro scale, from human body parts and to nature world events analogically corresponding to each other. The idea brought the great geometrical and proportional order of the Golden Ratio which relates mathematics, geometry, physic, astronomy and finally the art of medicine as well. Those relations among all the great patterns of nature are hidden behind a secret key; this 'golden ratio' (Figure 5).

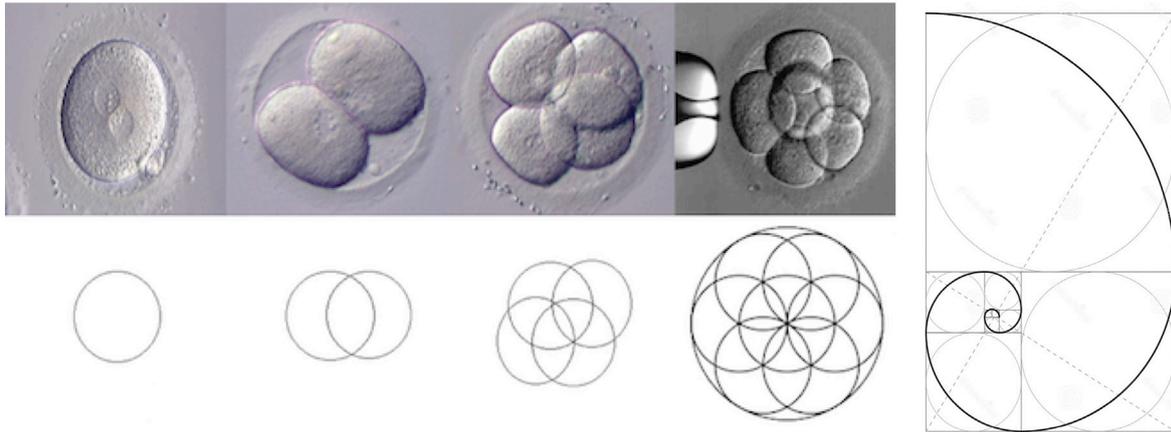


Figure 5. Sacred geometrical representations of the stages of cellular division
 Source: <http://bit.ly/2xV2o5q>

The Laodicea Health Altar relief sculpture addressed the concept of organizing pictures and scenes in narrative sequences, creating real visual objects that aimed to transmit medical and scientific information by constructing an illusory physical space that embraces and accompanies the emblematic episode being narrated. To identify a means of visual communication capable of rendering geometrical/proportional systems, the underlying Egyptian structure and the relationship between the time when the work was viewed and the natural world represented in the work by reconstructing the depicted space in three dimensions.

Results

When the proportional geometry and the structure used in the scene are analyzed, it's clear that applications of Egyptian geometry and use of the golden ratio (Figure 6) on Laodicea Health Altar is considered as the measurement systems. At the same time, Laodicea's medical school used the analogy of the human body and the golden ratio, proving this formula not only applies to architecture and nature but also to the universe, human body and medicine as well. As always, nature is the guiding light.

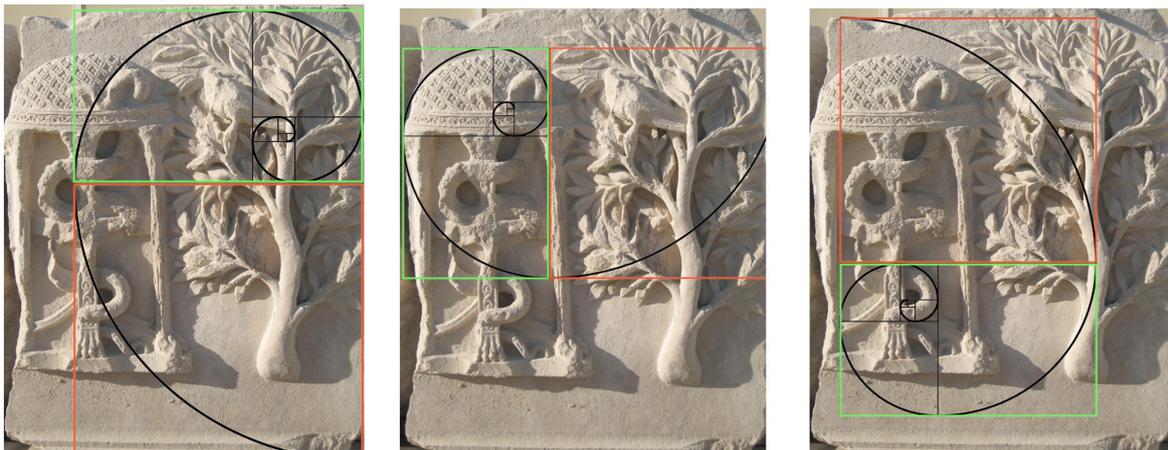


Figure 6. Laodicea health altar and golden ratio



Figure 7. Laodicea health altar and geometric articulations



Figure 8. Great mathematics behind Laodicea health altar

All those above referenced meanings were structured on a geometrical proportional base system. This structure emerged from the algorithm of nature or the ratio found in nature carved on the altar as the seat of extensive scientific enrichment in medicine (Figure 7). The visual axes were structured based on the mathematical and geometrical articulations. Geometric visual connections were used as the base for the articulation of the figures referring to the meanings (Figure 8).

This altar, now converted and transformed into the modern symbol of the Pamukkale Medical Journal, is how the author interpreted the Laodicea Health Altar from its ancient genius into an intricate symbol of modern medicine and scientific thought. The medical journal has adopted the symbol with a new design as its basis for showing the importance of the Laodicea/Denizli area in the development of human thought and the region's transcendent medical vision (Figure 9).



Figure 9. Egyptian Sacred geometry based on cell division, golden ratio applied to the altar

The altar composition represents analogical reasoning methodology applied across different disciplines of science, mathematics and medicine. In medicine this sculpture corresponds with the structure and function of the human body. In social science the composition corresponds with the system of the emperium of the Augustan era. In physics the composition corresponds with the motion of the universe, the idea of a central force and the divine motion around it. The figures of the whole composition were structured using mathematics, proportional

geometry and golden ratio alignments on the altar. These alignments clarify the relational predicates between mathematics, nature and physics in the development of medicine in this ancient era melding Greek, Egyptian and Turkish science and philosophy integrated on one dynamic composition.

As a conclusion, given the historic times and genius behind the Laodicea health altar, perhaps the ancient discovery can be a base for new theories in medicine to allow us to connect the

future and past while discovering the emerging power of mythos and story in the human body. In a pandemic time when nature is demanding mankind re-think how it manages the world's resources and medicine against the demands of a growing population, it is likewise requiring a more sustainable and visionary approach to global medicine, one that maximizes the body's natural healing power.

Ultimately, analogies from both metaphor and nature are deeply entrenched in medical schools and have no doubt been useful for developing science in medical education and clinical practice. It is worth noting that mythos can be the base of transcendent metaphors especially in vivo context where more unknowns exist than knowns. Analogical inspirations on the other hand, are compatible with the growth of scientific knowledge between expansive philosophical thinking (mythos) and a very grounded reality (logos).

What makes knowledge based on very grounded reality is aligning different layers of natural phenomena and corresponding the parts with the perfect proportion of nature; the golden ratio. The golden ratio is also intricate to the emerging science of quantum computing and quantum medicine, seen by many as the best hope for mankind finding the answers to the globe's emerging problems of population and scale. One of the most important hidden secrets of this altar is showing mankind how to restore science and spirit to their past genius and connection.

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Appendix



Pau Medical Journal Logo Tasarımı



<https://youtu.be/aWfo55x0UX8>
Scan to see the video of the design process