



# ON THE CURVATURE OF INFERENTIAL THINKING

An experiment in *epistemological constructive geometry*  
by Pierre Beaudry, July 4, 2014



**HIGHER HYPOTHESIS:  
MIND IS THE MEASURE OF CHANGE IN THE UNIVERSE BECAUSE CHANGE IS THE  
MEASURE OF MIND.**

Here are some fireworks for this special July 4<sup>th</sup> celebration. The question I want to develop with you, here, is twofold. First, how do you look into your mind in order to discover the axiomatic boundary conditions that must be changed when you set out to make a discovery of principle? In other words, how do you discover axiomatic limits and how do you know that what you have found are actual bounding conditions. Secondly, how can you demonstrate that by changing such boundary conditions you are able to establish an epistemological *quantum of action* which is in tune with the chemistry of physical-space-time? In other words, how do you define a reciprocal proportionality between mind and the universe as a whole? The answer to these two questions may be found by an *epistemological quantum entanglement*.

This exercise may appear to be very complicated, but it is actually very simple. All you need to do is to follow the principle of the Peace of Westphalia, the *Benefit of the Other*, and apply it as a functional principle of reciprocity. However, there are two preliminary conditions for this experiment to succeed: you must first exclude sense perception and deductive thinking from any of your mental activities, and secondly, you must put yourself in another person's shoes. This is why such a process can only be grasped by inferential thinking; that is to say, by means of reciprocal proportionality.

This question of inferential thinking, which will be the central thread of this inquiry, is related to the method that Lyn discussed last March 18, 2014, when he addressed the question of *action* and of

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*boundary conditions* with respect to scientific knowledge as the central function of the Basement work. As he put it then:

*“Because literary methods do not give you access to scientific judgment. They give you only descriptions of the effects of scientific discovery. And what we have to practice, is that the Basement, which is a paradigm for this, is an actual scientific discovery, scientific principles, not descriptive things, not impact statements, but actually how things work scientifically [...] instead of using language to talk at subjects of science, you have to actually talk science as a practice, not as an observation. [...] We no longer describe the effect of science; we describe the mechanisms of scientific progress [...] talking about what practice is of science. Don’t describe it, prove it! Demonstrate it! Identify the principles involved. Identify what the principles are, what they mean, why this has to be done, why everything would be a failure otherwise.”* (Lyndon LaRouche, *NEC Meeting*, March 18, 2014)

This means that the method of discovery should not be deductive and descriptive in any form, but inferential and performative, which also applies to literary methods of classical artistic compositions under precisely determined conditions, such as Shakespeare demonstrated, for example, in his sonnets 49 and 50. (See my report: [TWO SHAKESPEARE SONNETS ON THE SUBJECT OF TIME REVERSAL](#))

What is required, however, is to apply this process to the discovery of a scientific method of change underlying the process of creating new ideas; that is to say, the process performing an axiomatic change inside of the human mind through the action of its own process of discovery. That is the only way you can create the characteristics of mind. This is the reason why a discovery of principle must always be understood through the performative action it produces, not through the formal, deductive, and descriptive effect it tries to replicate. The process is therefore defined through internal curvature, not externally through Euclidean straight lines. The discovery is the process of an actualized quantum of action, not the resulting effect of the change produced by this quantum of action.

Therefore, the performative action must always accomplish what it says it does by actually causing a change in the minds of the people it is addressing. Knowing this, you can measure anything in the universe. Therefore, instead of describing the world as you see it, you must go inside of another mind and generate an understanding of how the world ought to be changed inside of that mind by demonstrating how your mind changes the existing world through a principle that defines the way the world should have been and must now be. This is how to generate an inferential discovery in another person’s mind by identifying the process of his discovering it within the proverbial pudding. The report has four sections:

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1. BREAKING OLD AXIOMS: THE FALLACY OF MATHEMATICAL MEASUREMENT
2. CREATING NEW AXIOMS BASED ON THE COURAGE OF TRUTH
3. THE INFERENTIAL THINKING BEHIND THE ARCHYTAS DOUBLING OF THE CUBE
4. THE DOUBLING OF THE CUBE AND THE SHADOW OF THE GREAT PYRAMID

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## INTRODUCTION

Let me restate, here, the epistemological point about inferential thinking that John Quincy Adams had made to Jeremy Bentham during a discussion he had with him in Hyde Park, London. Adams reported in his diary:

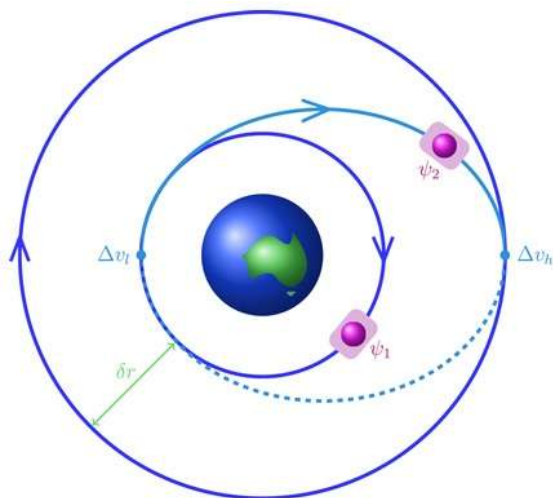
“It was the last morning walk I took with J. Bentham, and we went as usual through Hyde Park and Kensington Gardens. The written questions upon the state of religious opinions in America, and particularly upon the effect of avowed deism or atheism upon man’s reputation and influence in society, with the answers I had given to them, formed the principal subject of our conversation. I perceived that my answers were not exactly such as he would have desired. He spoke with more reserve than usual, as if unwilling to shock prejudices which he had found rooted in my mind. The general tenor of his observations, however, was to discredit all religion, and he intimated doubts of the existence of God. His position was, that all human knowledge was either positive or inferential; that all inferential knowledge was imperfect and uncertain, depending upon a process of the human mind which could not, in its nature, be conclusive; that our knowledge of the physical world was positive, while that of the creator of it was inferential; that God was neither seen nor felt, nor in any manner manifested to our senses, but was the deduction from a syllogism, a mere probability from the combinations of human reason; that of the present existence of matter we have positive knowledge; that there was a time when it did not exist we assume without proof, for the purpose of assuming, equally without proof, an eternal Creator of it.

“I observed in answer to it that inferential knowledge was in numberless cases more to be relied upon than what he called positive knowledge, meaning the mere testimony of the senses; that our knowledge of physical nature, such as it is, consists entirely of inferential corrections of the testimony of the senses. While we trust the positive knowledge of the senses, we must believe that the sun and the whole firmament of heaven move daily round the earth, and so stubborn are these cheating senses, that after they have been convicted of imposture, and when we know it is the revolution of the earth round its axis that produces all of these phenomena, we persist in saying that the sun, moon, and the stars daily rise and set, and it is only when we sit down to astronomical calculations that we discover the truth, the triumph of inference over the senses. I said that the proofs of intellect in the operations of the material world were as decisive to my mind as those of the existence of matter itself; intellect not residing in matter, but molding and controlling it. What is that intellect, and where is it? Everywhere in its effects; nowhere perceptible to the sense. That this intellect is competent to the creation of matter I know, not from reason, but from revelation; but that it modifies and governs the physical world is apparent to my senses and my reason.

“He replied little to this argument, apparently because he saw that my opinions were decided, and he did not wish for controversy...From the general tenor of his part in this conversation, and from several inconsistent remarks of his upon other occasions, I

consider him as entertaining inveterate prejudices against all religions, and that he is probably preparing a book against religious establishments. If he had found my sentiments congenial with his own, I have no doubt he would have disclosed his sentiments more fully.” (John Quincy Adams, *Memoirs of John Quincy Adams, His Diary from 1795 to 1848*, edited by Charles Francis Adams, Philadelphia, J. B. Lippincott and Co, Vol.? 1877, p.464-5)

What Adams is emphasizing is not only that *inferential knowledge* must correct the false positive knowledge that is given by sense perception, but he also indicates that, because of his reliance on sense perception, Bentham was incapable of breaking with company manners and of being truthful about saying publically what he was thinking privately. In other words, what Adams is implying is that *inferential knowledge* not only has the means of replicating power in its own mind as well as in any other mind, through proportionality, but that it also has the individual power of holding ideas universally, that is, socially and proportionately together as pairs of particles might do in the process of what physicists have hypothesized as superluminal communication using *quantum entanglement* in the small. From the standpoint of epistemology, the problem to be solved is to apply the Einstein’s work on gravity to the quantum level.



If it can be proven that gravity and other relativistic features of Einstein’s theory apply in the small, such an experiment in *quantum entanglement* with a Bose-Einstein Condensate (BEC) might be where to demonstrate the unity of principle between the discoveries of Planck and of Einstein. This is the problem that David Edward Bruschi, et al., might be able to solve with their suggested experiment. On May 30, 2014, Bruschi reported his hypothesis to *Phys.org* with an article entitled: [Space-based experiment could test gravity’s effects on quantum entanglement](http://phys.org/news/2014-05-space-based-gravity-effects-quantum-entanglement.html#jCp). (Figure 1)

**Figure 1** The article stated: “In the proposed experiment, two entangled BECs in separate satellites begin by moving in the same circular orbit (small orbit in the illustration). Then, one of them undergoes an acceleration in order to change to a different circular orbit by means of an elliptical transfer orbit. The change in gravity is predicted to cause a degradation of the entanglement between the BECs. Credit: Bruschi, et al. ©2014 IOP Publishing Ltd. Read more at: <http://phys.org/news/2014-05-space-based-gravity-effects-quantum-entanglement.html#jCp>”

The interesting aspect of such an experiment is that it may lead to the discovery of a new principle which is able to unify the apparent contradictory characteristics of quantum physics and General Relativity. The point to concentrate on, in this BCE experiment, is that the different aspects of the change might reflect the characteristics of an axiomatic change in the human mind. So, three things are to be looked for. When a system is brought to its limit such as this quantum phase of matter known as the Bose-

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Einstein-Condensate (BEC), what you want to look for are the three following phenomena: the high density dissonance of anomalies (noise) produced at the limit, the sudden crossing over from a lower state into a completely new and higher state of energy-flux-density, and the ease with which the new manifold snaps into a locked position. The noise can be understood as something similar to an arithmetic-geometric mean proportional division between the two phases; something akin to the process of change which takes place in a voice-register-shift of Bel Canto singing.

This experiment also implies an axiomatic difference between Plato and Aristotle, which is the same as the difference between inferential thinking and deductive thinking. Raphael raised this difference in his famous fresco [The School of Athens and the Dispute](#). In other words, this poses the question: How did ancient mind discover there was such a difference in astronomy, which they might even have forecasted as becoming the most fundamental epistemological division among human beings, to this day?

It is urgent to solve this problem, today, before we all blow up into a thermonuclear cloud. The principle to be discovered, therefore, is the principle required to understand the process of thermonuclear fusion as opposed to thermonuclear disintegration. As Lyn emphasized the difference between inferential thinking and deductive thinking:

*“In a few earlier reports, I have referenced the roots of incompetence in scientific matters, which are still rampant: as typified by the mistaken notion of sense-perception as wrongly presumed to be a basis for defining scientific evidence in respect to matters of physical fact. The most direct approach to an understanding of that error, is to refer to the nature of the discovery of any actually universal physical principle, that as distinct from what have been, in fact, empirically deductive methods for defining conceptions. This is an issue which goes to the rarely considered, but actual fundamentals of physical science, as, also, similarly, to the matter of valid examples of Classical artistic composition.”* (Lyndon LaRouche, [The Meaning of Life as Such](#), EIR, March 21, 2014.)

Deduction cannot define conceptions for the simple reason that sense perception cannot be the source of any idea. Ancient minds have discovered this error of sense perception very early on by imagining that while they were looking at the heavens, the heavens were looking back at them. They imagined: “What if all of those shining stars were the eyes of God watching over human beings while they were asleep?” They realized, then, that such an idea was not an ordinary perception.

This was probably one of the first attempts to understand inferential thinking during ancient times; and the result was complete perplexity. In a second step, ancient mind might have asked itself: “What if the human mind had been created in the image of God?” Such a hypothesis might have made them hesitate even more, because how can a small creature like man be compared with the power that created the universe? In a third step, however, ancient mind was probably so surprised at his daring idea that he burst out in laughter and cried out everywhere he could be heard: « *What is the universe trying to accomplish by producing thinking beings in whom it can reflect itself?* » Those were actually the three most natural steps that mind could make in a first attempt to understand its role in the universe and begin to understand why God had given him the ability to change the universe as a whole by inferential thinking.

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## 1. BREAKING OLD AXIOMS: THE FALLACY OF MATHEMATICAL MEASUREMENT

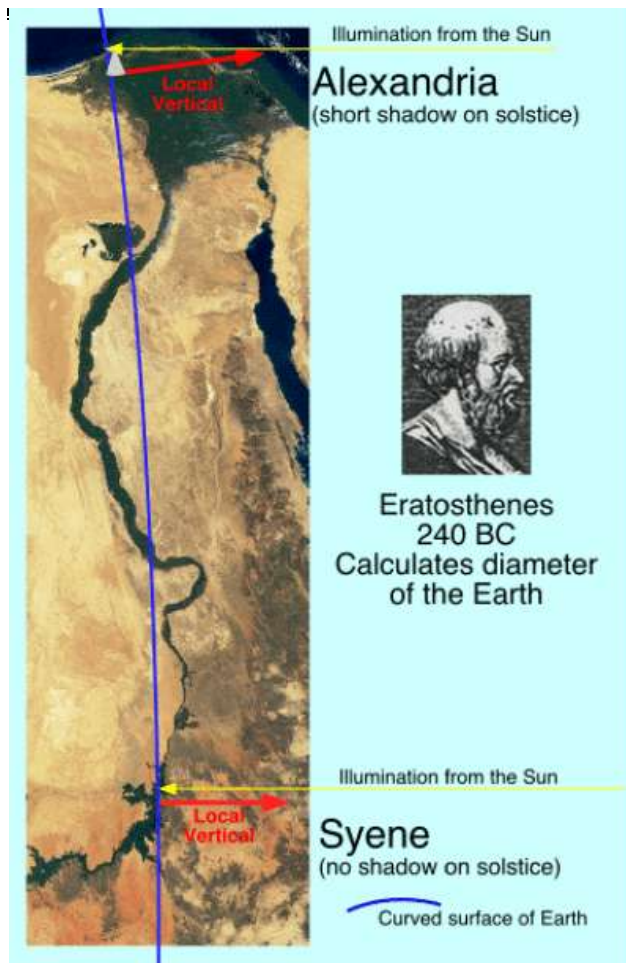
*“... God created and bestowed vision upon us so that we, contemplating the orbits of intelligence in the heavens, might put them to use by applying them to the orbits of our reason, which are related to them...”*

(Plato *The Timaeus*. 47 b.)

Let's reconstruct the imaginary situation of an early discovery of principle such as the discovery of Eratosthenes (240 BC). The point to be made is that the intention of Eratosthenes was not the discovery of the circumference of the Earth, but to use the circumference of the Earth as a means to discover something else, which was much more fundamental. In fact, his intention was not to determine the circumference of the Earth at all. The measure of the circumference of the Earth merely proves that mathematicians are foolish people. This is what Lyn implied when he wrote:

“The origin of the commonplace fallacy which I treat here, is best attributed to the adoption of a certain blinded faith, to the effect, of an axiomatic presumption of the essentially mythical blind faith in a presumed functional quality of "elementarity" attributed to human sense-perception per se: *a delusion which had been already discredited by the importantly discovered principle of Eratosthenes' measurement of the Earth. It is the delusion of belief in a sense-perceptual phenomenon of human sense-perception as lying within the domain of sense-perception of an object within the atmosphere of Earth, as compared to the transit of the cycle of the observation of the position of the Sun lying outside the atmosphere of human sense-perception.*” (Lyndon LaRouche, [ECONOMISTS WHO WERE USUALLY STUPID](#), March 8, 2014.)

What is Lyn saying here? He is saying that what Eratosthenes discovered was not the circumference of the Earth, but the inferential power of the human mind to make discoveries in opposition to sense perception deduction. What's the difference? Compare the two projections of the Sun from the same Solstice Day at Syene and at Alexandria in Egypt. These two projections are two perceptions. What do these two perceptions tell you about your mind inside of the Solar System? Nothing.



On the other hand, what does your mind tell you? Your mind tells you two things: *The first is that it is your mind which is the measure of the universe and the second is that the measuring power of your discovery was made by proportionality.* In other words, the angular difference between the two projections of the Sun at the same time on the surface of the Earth tells you that the circumference of the Earth is the result of your mind discovering that the angular difference between those two locations on the same meridian is proportional to the distance between the two points. Therefore, what you have discovered is not a mathematical measurement, but the power of the mind to measure inferentially by proportionality. This is the same inferential method that Thales of Miletus (c. 624-546 BC) used to discover the height of the Great Pyramid, three hundred years before Eratosthenes.

**Figure 2** Eratosthenes's discovery of inferential proportionality. <http://homework.uoregon.edu/pub/emj/121/lectures/eratosthenes.html>

This is how the geometry of *inferential knowledge* works. It has nothing to do with deduction, as too many foolish dictionary definitions would have you believe. In reality, what dictionaries won't tell you is that in order to function properly, an inferential process of thinking requires three distinctive steps, which correspond to the three steps of a discovery of principle; that is to say, *overcoming the fear of the unknown, the discovery of a proportional relationship, and the laughter at your own stupidity for not having figured this out earlier.* This is also the geometry of the Peace of Westphalia process of change between three human subjects.

Furthermore, the discovery of Eratosthenes is the discovery of inferential thinking by proportionality between your mind, the Solar System, and the Cosmos. Once you have understood that point, you know how misleading mathemagicians can be with respect to true science. Take the case of the Cosmos as a whole. How can your mind relate to the incommensurability of the cosmos and to God's Mind? Your mind can only relate to the Cosmos and to God's mind by inferential proportionality. How can you demonstrate that?



One of ancient mind's first discoveries of principle relating to proportionality was that of the transparent-non-visible Celestial Sphere of the Universe. However, that early mind must have been, at first, very perplexed, because it did not know what to make of the fact that his visual perception kept seeing the canopy of the stars move around, night after night, in an apparent complete disorder, but always in the same direction. Likely, he could not figure out why such a messy composition of lights kept turning around his head without any apparent reason or order except the fact that the same starry lights kept coming back, again and again, in the same direction, in clusters, and in some sort of cyclical motion around the same spot in the night sky.

**Figure 3 “Star Trails Over Vienna Credit & Copyright: Peter Wienerroither (U. Wien)”** This overnight exposure of stars rotating around the Celestial North Pole is a typical illusion of sense certainty.

This early inquiring mind kept being amazed by the fact that such a disordered arrangement seemed to be as chaotic as nature itself that surrounded him, and yet it kept coming back, repeatedly, like annual seasons kept coming back, around him, year after year, in some sort of regular periodicity. That fascinated him, because his perception kept telling him one thing, and his mind kept telling him another.

His perception kept showing him the chaos of different things being born and dying, and his mind kept showing him the motion of the same pattern of an eternal cycle. Which one to believe in, he didn't know? He tried to understand them both, together, but they were contradictory. He was constantly perplexed by the fact one kept changing and the other kept being the same. Appearances always changed, and something underlying these appearances kept remaining unchanged. That's when the early mind began to realize that what he was observing was a lie. It began to dawn on him that what he saw was a fallacy of composition, because what he was looking at was a false image of the Universe. Early mind began to realize that sense perception was not a bounding condition for knowledge.

Of course, **Figure 3** represents a complete fallacy of composition based on the deductive formation of a continuous visual illusion. The starry heaven doesn't really rotate around a celestial North Pole. This is not an error of perception; this is an error of judgment. There is nothing wrong with this perception or with the camera that took the picture. What is wrong is that this picture excludes the human mind. The error is that you cannot study the cyclical motion of the stars and the planets without including



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its relationship to the human mind, and without treating the defect of sense perception as being a component of that relationship. So, what is missing in astronomy, generally, is the same that is missing in quantum physics: the necessary inclusion of sense perception as a fallacy and the proportionality between the human mind and some intelligence in the universal principles of physics.

Why is that a mistake? Because the alleged harmonic proportionality between the heavens and the mind has never been visible to the senses, but can only be reflected in a higher truth which is to be found in the idea of Plato's Cave. This is also probably the reason why the original Greeks gave the name of *κοίλος* to the idea of a cave and that the Latin people translated the same Greek word by *coelus* which means heavens, as does the word *ciel* in French. The etymology of languages is sometimes very strange, but always very insightful.

However, the point to reflect on, here, is not the language, per se, but the proportionality which exists between the reason behind the movement of the stars and the movement of the human mind. As Plato put it: "... *God created and bestowed vision upon us so that we, contemplating the orbits of intelligence in the heavens, might put them to use by applying them to the orbits of our reason, which are related to them...*" (Plato, *The Timaeus*. 47 b.) If Plato is right, then, there must be a unique way of organizing that relationship between the orbits of human reason and the orbits of intelligence in the heavens. How can one discover that? Let's look at how the celestial sphere was created by an ancient mind.

Let us imagine the way in which the relationship between *the orbits of intelligence in the heavens* may be related to *the orbits of human reason*. Imagine yourself being a source of intelligence projecting rays outward, everywhere inside of a sphere of fixed stars, and seeing those stars as reflections of your own projection inside of that sphere. Like in Plato's Cave, those dots might be conceived as being projected back from the cavity of the heavenly sphere like as many points of intelligence projected into an inverted spherical mirror. How can this state of mind be illustrated?

## STEP ONE

In this first step, ancient mind must have had the impression of discovering that stars rotating as if they were attached to the surface of an invisible Celestial Sphere that moves always in the same East to West direction. How early this was recognized as being defective is not known, however, as I will show near then of this report, Ancient Egyptians took that defect of sense perception into account in the construction of the Great Pyramid.

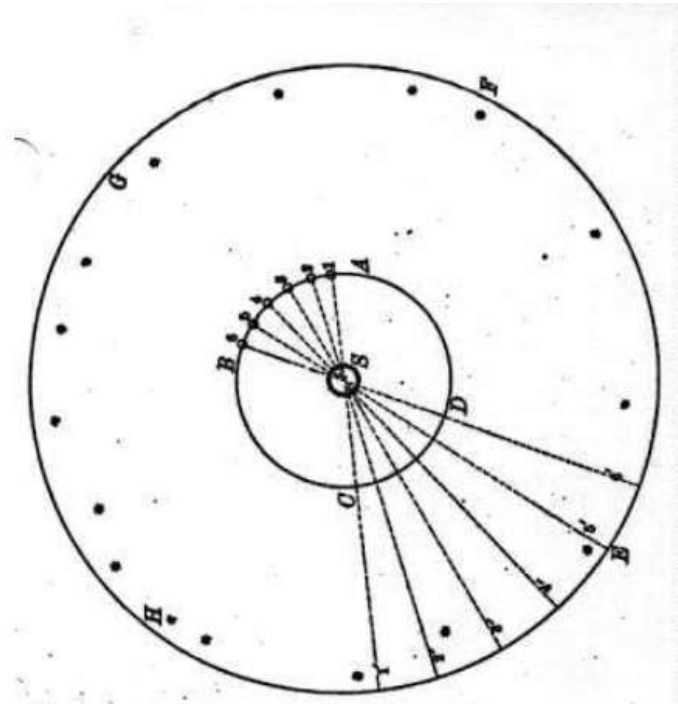
In **Figure 3**, the investigator is separated from this heavenly motion, as if he were standing on a non-moving platform and watching everything else moving. The impression is that everything is moving except him. Here, the human mind is reduced to be merely a photographic observer of the universe, a mere perception, a mere objective view of something that exists outside of him. The problem, here, is that no true discovery could ever be made without the inclusion of the human mind into the process of the discovery. By including the mind into the process of discovery, the whole process of scientific inquiry becomes an actual demonstration in the sense that Lyn called for.

From that standpoint point of inclusion, the mind has to imagine he's embracing the whole of creation, from such a position that, although his object seems to be outside of him, it actually includes

him in a paradoxical manner of being both a part of it and the whole of it, at the same time. That's the perplexity of the first step.

### STEP TWO

If the epistemological condition of the first step must include the investigator into the scientific process of discovery, then in a second step, it is necessary that this investigator be looked at as not only proceeding from the top down, but also be able to transport himself, paradoxically, outside of the universe. **(Figure 4)**



There, the investigator can observe himself in a thought experiment in which he is orbiting around ABCD while looking at the Sun S from any position 1,2,3,4,5,6 between A and B on Earth. Furthermore, he can imagine that the Earth is moving around the Sun, while everything else in the universe is apparently fixed inside the cavity of a transparent sphere EFGH. This is not a fallacy of composition, but a least inadequate image of the inferential process of relationship between the Mind, the Sun, and the Universe. Inside such an entanglement, the mind is both everywhere and nowhere.

**Figure 4** The *Noospherical Quantum of Entanglement* among the Mind, the Sun, and the Universe

In this second step, the mind recognizes that it has to be included as the essential component of the process of the scientific observation, that is, as the leading motion of the triply-connected entanglement, but it must also include the motion of the Solar System, and the motion of the Universe as a whole. Thus, this triply-connected motion is the appropriate manifold by means of which the early mind began to understand the complex domain of inferential thinking as a corrective process of self-conscious inversion, and in such a way as to always be in direct opposition to the fallacy of sense perception. This process includes, therefore, an axiomatic discovery of principle which locks the universal mind into what can be identified as the *Principle of Self-Conscious Inversion*, or the *Noospherical Quantum of Entanglement*.

### STEP THREE

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A third step, which includes the two previous steps, is required to complete the epistemological conditions of the *quantum of entanglement*. This third step represents the closure of the entire process. Imagine, that from outside of the Celestial Sphere, your mind had been observing itself determining investigations from a moving Earth, but from the Sun as center. This is the same process, in the large, as the process of resolving the fallacy of the so-called Heisenberg “Principle of Indeterminacy” in the small. In other words, this heliocentric mind knows both the position and the momentum of the process of change, from both the inside and the outside of the Celestial Sphere, simultaneously, without violating causality and never from any particular localized standpoint situated on Earth. What are the implications of this epistemological quantum of action?

Such a universal mind is both the central principle and the encompassing principle of the experiment, the center and the circumference, as if from a Nicholas of Cusa vision of God who is everywhere and nowhere. Now, look at how this mind is the measure of the universe through establishing the apparent annual motion of the Sun against the interior of the Celestial Sphere, and without any “*spooky action at a distance*,” as Einstein warned against. (Figure 3)

In our heuristic model, days made the Sun appear in six different but inverted positions, as in a mirror image, at points 1', 2', 3', 4', 5', 6', on the surface of the Celestial Sphere, EFGH. The outside observer is able to ascertain that the amount of displacement of the motion of the Sun cannot be estimated from the Earth and that their extensions as marked on the surface of the Universal Sphere are proportional to the angle of change of the Earth's angular motion with respect to the Sun, from the top down and not from the bottom up.

The irony is that it is only from the outside of the Universal Sphere that the mind is able to see the truth of this experimental proportionality. It can never be discovered from the Sun not from the Earth, and the only possible knowledge relating the Earth and the Sun can only come to existence from outside of the Universe. In other words, your knowledge of the universe can only be God-like. This *axiom of self-conscious inversion* or *epistemological quantum of entanglement* implies not merely that the minimum and the maximum can be thought together, but that the incommensurability between the universe and the human mind can also be understood as proportional. This is the reason why human time in the universe is never linear but always proportional and multiply-connected. This process, however, is not to be confused with the visual illusion that sailors sometimes apprehend on a calm sea, when they have the impression that it is the shore line which is moving and not their ship. This experiment is merely an illusion of sense perception. It is not the certainty of the irony of how an *epistemological quantum of entanglement* should be conceived.

Our purpose here is not to confirm sense certainty by establishing how the epicyclical or elliptical motion of a planet can be accounted for within the general relativity of perception. The issue is to understand the idea of a *noospherical quantum of entanglement* that reflects the subjective human power of creativity inside of the universe. The required idea is specifically located within the domain of Riemannian manifold of changing from the failure of sense perception and deductive thinking to an efficient causal principle of mind; that is to say, its intention.

In epistemological terms, this means an axiomatic change from an initial combination of observations of a Celestial Sphere, first established for the purpose of transoceanic navigation upon the non-visible Earthly sphere ( See [The Columbus Principle](#)), and later to the discovery of the cognitive

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means required for navigating the Cosmos itself. And, this requires a completely new and higher hypothesis of inferential thinking which works on the principle of quantum time and communication that the Chinese have begun to discover, recently. Let me give you an example of this potential from a recent discovery that was made on the *tuning of atomic time*. Note the following bit of news from China that never made the headlines in the United States:

“Three years ago, Jian-Wei Pan brought a bit of *Star Trek* to the Great Wall of China. From a site near the base of the wall in the hills north of Beijing, he and his team of physicists from the University of Science and Technology of China (USTC) in Hefei aimed a laser at a detector on a rooftop 16 kilometers away, then used the quantum properties of the laser's photons to 'teleport' information across the intervening space. At the time, it was a world distance record for quantum teleportation, and a major step towards the team's ultimate aim of teleporting photons to a satellite.

“If that goal is achieved, it will establish the first links of a 'quantum Internet' that harnesses the powers of subatomic physics to create a super-secure global communication network. It will confirm China's ascent in the field, from a bit-player a little more than a decade ago to a global powerhouse: in 2016, ahead of Europe and North America, China plans to launch a satellite dedicated to quantum-science experiments. It will offer physicists a new arena in which to test the foundations of quantum theory, and explore how they fit together with the general theory of relativity — Einstein's very different theory of space, time and gravity.” (Seeya Merali, [Data teleportation: The quantum space race](#), *nature*, December 5, 2012)

This may be one of the reasons why the Chinese are making some British agents in the United States very uncomfortable, today, with their investigations into applied Quantum Physics. Why? Because the Chinese are becoming more American than Americans. How could you send a data bundle of 100 gigabits per seconds through interplanetary distances and get the signal back only a few seconds later? Is this not worth looking into? The future of communication at a distance seems to be in quantum measurements. As [nature.com](#) reported this news from China a few years ago, little attention was paid to the intention behind this discovery.

The point of looking at quantum teleportation is not to confirm or deny the axioms of quantum physics, because we know these axioms, as Einstein demonstrated in his EPR Paradox, are wrong. The point is to study the paradoxes that researchers such as Pan in Beijing and Zeilinger in Vienna encounter, and check their validity against a new principle, which does not yet exist, that is, the hypothesis of thermonuclear fusion. Therefore, the point of interest is to find out what happens when the quantum physics axioms are brought to the point of breakdown.

On April 23, 2014, however, [nature.com](#) also reported that China had started to install the longest quantum-communication system linking the 2,000 kilometer distance between Beijing and Shanghai. If it is true that the quantum of action is the proportionality between Energy and the frequency of its electromagnetic wave, as Planck established a century ago, and that the results of this Chinese data teleportation experiment reflects the inferential thinking discussed above, then, both processes must correspond to the same dynamics that Planck had discovered in his quantum of action. Moreover, this

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quantum of action might also correspond to what Leibniz called the proportionality between Power and Reason, and what I have previously identified as the proportionality of an epistemological interval of action of axiomatic change between the Poloidal and Toroidal actions within Torus Geometry. Louis de Broglie generalized the Planck constant by demonstrating that the proportionality between the momentum and the quantum wavelength is not only valid for the photon, but also for any wave-particle.

(See my reports: [LOUIS DE BROGLIE: THE WAVE AND PARTICLE PARADOX](#) and [LOUIS DE BROGLIE AND THE FACTOR OF INTENTION IN THE UNIVERSE](#) )

Thus, the real issue behind *quantum entanglement* is not how to get more precise atomic clocks, as [nature.com](http://nature.com) keeps emphasizing in its news reports. The issue is not whether the second of chronometric time should be measured from a Caesium atomic-fountain clock or from a cloud of strontium kept at a characteristic wavelength. The issue is the same as in the discovery of Eratosthenes. The discovery is not the precise measurement of the Earth, but rather the power of inferential thinking. Now, apply the same axiomatic requisite to the recent article from [nature.com](http://nature.com), dated 15 June, 2014, in which Alexandra Witze wrote the following on *Tangled Time*:

“The idea combines two popular research trends. The first is atomic clocks, which are becoming more precise as scientists improve ways of measuring superfast fluctuations in the energy states of charged particles or atoms. *The second is quantum entanglement, in which pairs of particles become linked in such a way that measuring a property of one of them instantaneously determines the same property for the other.* (My emphasis) Lukin’s group wants to take a number of atomic clocks and entangle atoms from one clock to the next.

“Imagine a set of ten satellites orbiting Earth, each carrying its own atomic clock, says Kessler. One satellite, as the network’s centre, would start by preparing its clock particles in an entangled state. It would then communicate with a neighboring satellite to extend the entanglement there. The linking would eventually spread through the whole fleet, joining the satellites in one quantum network.

“Entanglement improves the precision of an atomic clock by reducing measurement noise (see '[Atomic clocks use quantum timekeeping](#)'). So all of the clocks in a joined network perform better than each would alone, Kessler says. “The clocks behave as if they have a single giant pendulum, which has a better accuracy,” he says.” (Alexandra Witze, *Quantum network would be most precise clock yet*, [nature.com](http://nature.com), 15 June 2014.)

The reason I have highlighted a significant portion of the preceding text is because it poses a fundamental question that Einstein had originally posed in 1935 and actually demonstrates that he was right. This is the famous EPR Paradox that demonstrated the shortcomings of the Copenhagen School and its fallacious quantum physics. My question, then, is: Is any value within a set of proportional intervals of action capable of being changed by any other value of the same entanglement?

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From the vantage point of epistemology, my question is how does the process of tuning a system of *quantum entanglement* by reducing the noise at the sub-atomic level represent the proportional equivalent of a social distribution of new creative ideas? Therefore, what needs to be secured seems to be the reduction of the noise level by means of the Quantum Key Distribution (QKD). The point to understand seems to be that by changing the quantum state of one system, you also change the state of the other, independently of their distance. Is that a demonstration that the Einstein EPR Paradox was right after all? If so, then, the question becomes: Is the reduction of the noise level in the small predictable in the large as well?

## 2. CREATING NEW AXIOMS BASED ON THE COURAGE OF TRUTH

*“While we have thus shown that the wave function does not provide a complete description of the physical reality, we left open the question of whether or not such a description exists. We believe, however, that such a theory is possible.”*

Einstein, Podolsky, and Rosen, (The EPR Paradox)

Take, again, the case of [Christopher Columbus](#). How did he make a discovery of principle before he discovered America? He had the *quantum of entanglement* in his mind before he started. How did he discover that America was there without knowing where it was? *He didn't know where he was going, but he knew how to get there.* How can that be? Was he simply at the right place at the right time, or did he discover a principle before he left the European continent behind. And, what did he leave behind, exactly? Why do you have to leave something behind in order to gain something new? What he left behind was the stupidity of his oligarchical past. That stupidity can be equated, for instance, with the British fallacy that time is money.

The point to understand is that Columbus was all alone in pushing willfully a new way of thinking, a new state of mind which can be called the American outlook, the outlook of discovery. And, this outlook of discovery has been revived by Lyn, because it had been lost since 1900 by the likes of Bertrand Russell, and more specifically since the death of F. D. Roosevelt, and most emphatically, since the death of J. F. Kennedy. As a result of this British subversion, Americans have been brainwashed with the idea that you have to obey the British rule of family manners according to which, life is taking advantage of others. As a result, Americans were made to think that their government is a variation of a European oligarchical parliamentary system. On the contrary, Roosevelt and Kennedy were thinking like Columbus; that is, like scientific revolutionaries.

So, what did Columbus have to do to make his company go through his discovery of principle? He had to challenge the powers and principalities with a discovery that he had made, himself. The irony, however, is that you have to look into your own mind and not be afraid of the minds of others to make such a discovery. Try to imagine how Columbus explained to Queen Isabella of Spain that he knew how to get to India by sailing west and that she should finance this adventure without knowing if it was true or not that he knew how to get there. What did Columbus have to do? *How do you convince somebody that*

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*although you may not know where you are going to end up, you nonetheless know how you are going to get there?*

It is all amatterofmind. You have to have total confidence in your own mind and in the willful power to change another person's mind with the truth. In other words, the truth is that you are not recruiting people to good ideas; you are recruiting people to change for the purpose of improving mankind. You are recruiting people who will hate you for what you are doing to them, because you are making them very uncomfortable by taking their illusions and their comfort zone away from them. But they will thank you for it, because you are giving them a chance to replace their comfort zone with their own creative process.

Columbus discovered that same *quantum of entanglement*, and so did Archytas before him. The discovery was best defined by Leibniz who identified it as the PRINCIPLE OF PROPORTIONALITY BETWEEN REASON AND POWER:

*“Thus hope and faith are founded on love, and all three on knowledge. Love is a joy of the mind arising out of contemplation of the beauty or excellence of another. All beauty consists in a harmony and proportion; the beauty of minds, or of creatures who possess reason, is a proportion between reason and power, which in this life is also the foundation of the justice, the order, and the merits and even the form of the Republic, that each may understand of what he is capable, and be capable of as much as he understands. If power is greater than reason, then the one who has that is either a simple sheep (in the case where he does not know how to use his power), or a wolf and a tyrant (in the case where he does not know how to use it well). If reason is greater than power, then he who has that is to be regarded as oppressed. Both are useless, indeed even harmful. If, then, the beauty of the mind lies in the proportionality between reason and power, then the beauty of the complete and infinite mind consists in an infinity of power as well as wisdom, and consequently the love of God, the highest good, consists in the incredible joy which one (even now present, without the beatific vision) draws out of the contemplation of that beauty or proportion which is the infinity of omnipotence and omniscience.”* (Gottfried Wilhelm Leibniz, [On the Establishment of a Society in Germany For the Promotion of the Arts and Sciences](#), FIDELIO Magazine, Spring 1992)

If, as Leibniz said, hope, faith, and love are all three founded on knowledge, then epistemology is the science which you must master in order to access the power of their mixed entanglements. However, the question is: how will you wield that knowledge politically? Every LaRouche organizer knows how to answer that question, because the power of reason is essentially applied as the power of change which intervenes into a dying society. However, it is not every organizer who knows how its boundary conditions are set by an entanglement of discoveries of principle. And, that question of boundary condition resides in solving how to establish a daring new state of mind that never existed before. It was Lyn who best identified such boundary conditions, when he said:

“So there are boundaries which exist outside sense-perception, in the very small, and the very large, that sense-perception will never get by simple sight or hearing, you'll never get them, as such. But if you look at the *contradictions* in sense-perception, and look outside sense-perception for the source of the contradictions, then you have a completely different sense of the universe! Because now, you know you have to look for what are the boundary conditions which

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define the limits on what you think you're going to do, or what mankind is going to be able to do, or what the planetary system is going to be able to do, or what a whole star system is going to do. If we ever approach that point of looking at the star systems, they're self-bounded! Why do we have a whole nest of all these different kinds of things? Why do we have it? Because physical space, in reality, is **bounded**! That's why you have *cycles* in it!

“Now, when you think about that, now you understand how you were screwed by your schools and universities. Because you have to look at what, every action that occurs in the universe must have an inherent boundary: Your job is knowing the experimental methods by which you can discover what these boundaries might be. And when you think you've discovered such a boundary, now you're on the track to make further experiments, to find out if that's valid. Hmm? That size.

“Therefore, the language you use in your head, for thinking about everything of importance, has to be based on the fact of the inherent boundedness, of the whole damned system of the universe! And you have to understand what these boundary conditions are, and you will discover that in the same way that you have the case, from Brunelleschi, Nicholas of Cusa, Kepler, and so on. These are the methods of modern science and its true intention. Admittedly it's a limited capability for mankind, presently, but that is the principle which you already learned: That space and time are **bounded**; they are self-bounded systems, nested self-bounded systems. Hmm! That's why the galaxy eats up the Solar System. And the galaxy in turn is eaten up by a larger system; and the universe as a whole is eaten up by whole larger systems. That's what the purpose of astronomy is, is not to study where the bugs are moving around in space, but to find out what the boundary conditions are, within which space is organized. [...]

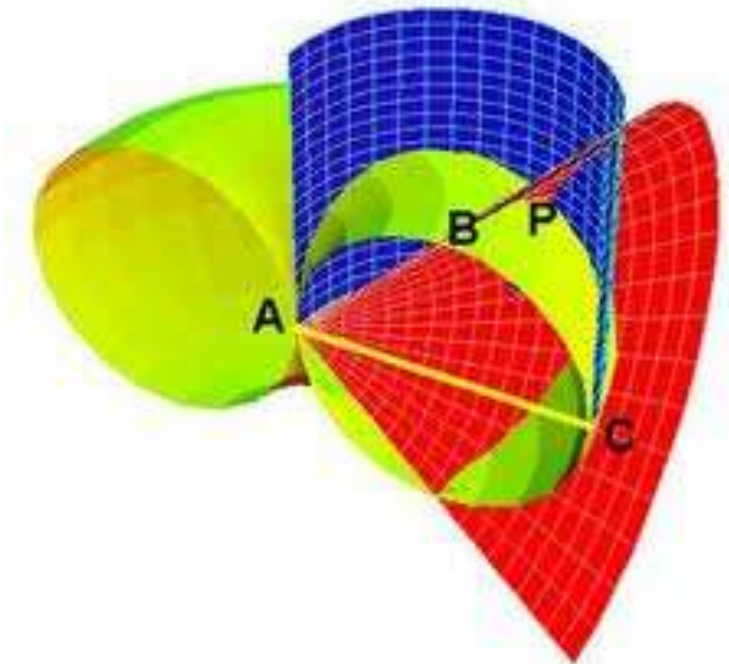
“What music is a measurement of something internal, which the human mind is capable of grasping by virtual experimental demonstration. That's why the evolution of music, say, from the Renaissance, up through Beethoven into Brahms, that this process is an **internal** experience, by the human mind which is induced as a limiting factor. And all great Classical composition is based on it. The same thing is true in all kinds of art: Classical artistic composition, drama, history, the history of mankind is all based on this kind of boundary condition. That's what you respond to!

“How can you think? What are the ingredients of thinking? The ingredients of thinking are these bounding conditions, which are multiple in definition, and if you understand these things, you now see the universe in a different way than the stupid jerk, who's around still in linear geometry.” (Lyndon LaRouche, *NEC Meeting*, March 18, 2014.)

### 3. THE INFERENTIAL THINKING BEHIND THE ARCHYTAS DOUBLING OF THE CUBE



As the story has been told, the citizens of Delos in ancient Greece had consulted the oracle at Delphi in order to stop the plague that was devastating their island. The oracle said that the plague will be stopped when someone discovers how to double in size the cubic altar of Apollo. The problem was given by the high priest as a satanic oligarchical challenge, because the problem was reputed impossible to solve. The problem was presented to Plato who could not solve it, but who passed it down to Archytas who did solve it by finding two mean proportionals between two lengths whose ratio was given as being  $2/1$ . Archytas solved the problem by creating a very ingenious triply-connected manifold involving the dual rotational actions of a Torus and a Cone around a fixed Cylinder. The point to understand and to reflect on, is that the problem was similar to the construction of the well-tempered musical system based on the Lydian voice-register-shift.



When you want to rediscover the Archytas process of doubling the cube, it is not sufficient to simply show the intersection of a Torus, a Cone, and a Cylinder on a computer screen, as it is shown in **Figure 5**. It is essential to walk through the process of the discovery step by step and to reconstruct the challenge with the idea of discovering the intention of Archytas behind his solution.

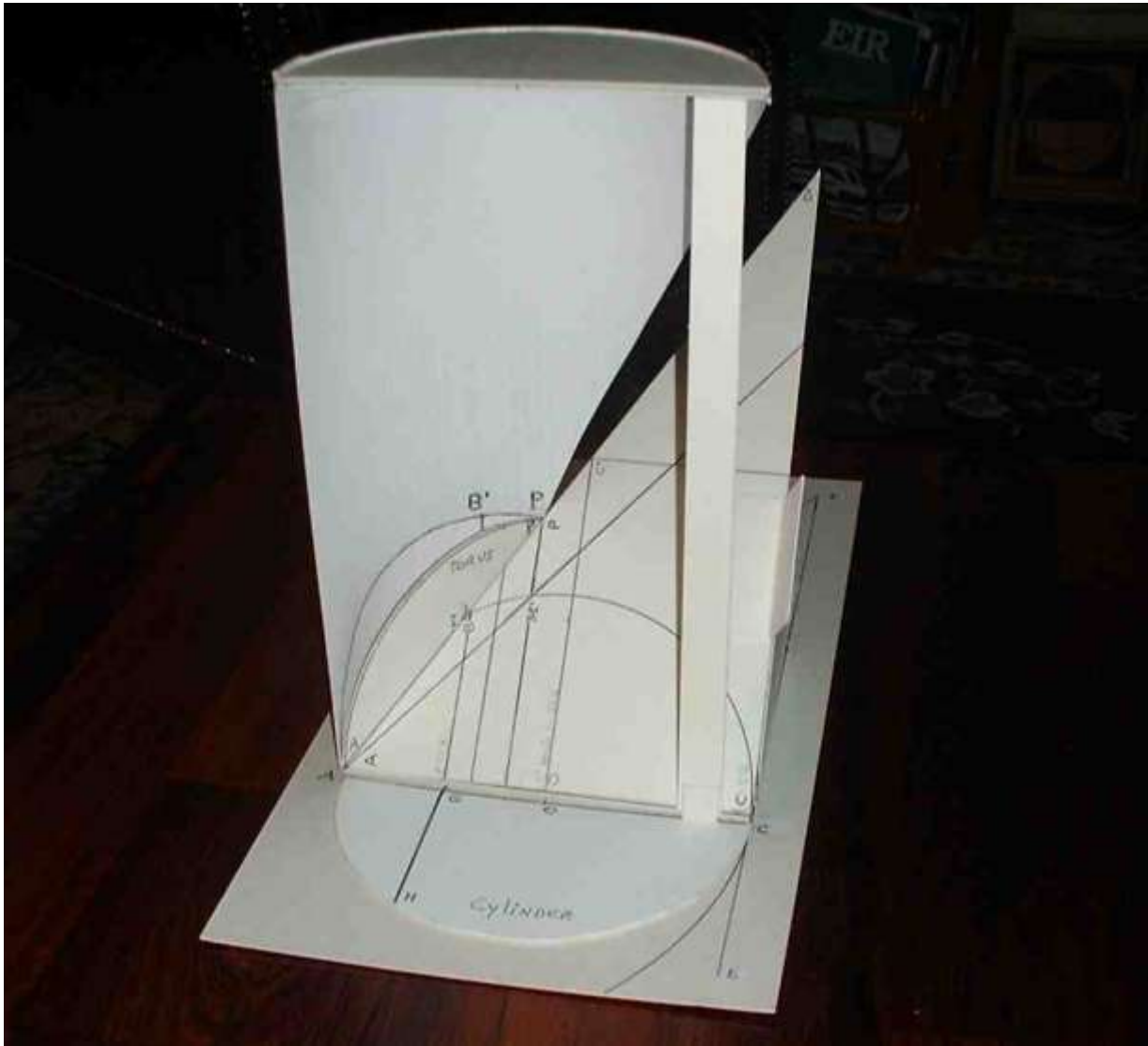
Here, change is the measure. So the question we are required to answer is why is this problem important for the mind and why did Archytas choose constructive geometry to solve it, as opposed to some other means?

**Figure 5** The intersection of the Torus, the Cone and the Cylinder

The short answer to the first part of this question is that this experiment is important because, like a voice-register-shift experiment in Bel Canto, such an experiment is a unique experiment in going from a lower manifold to a higher manifold. It increases the energy-flux-density of the mind. As for the second part of the question, the answer is that this experiment is important because it forces you to go beyond fixed limits through two very different motions.

I am now going to walk you through my own reconstruction of the original Archytas doubling of the cube, based on the hypothesis that the reason why Archytas constructed this proof was for you to discover the *principle of proportionality* between the human mind and the universe. So, this requires that you keep focused on two underlying bounding conditions: intention and proportion.

First, what was the intention of Archytas? His intention was to demonstrate that the creative human mind is capable of making axiomatic changes by going from a lower manifold to a higher manifold. In other words how do you go from doubling the square as in the *Meno* to doubling the cube? How do you go from the flat to the solid? How do you discover a new principle which will increase energy-flux-density in the universe? That's the first bounding condition.



**Figure 6.** My reconstruction of [The Archytas Model](#).

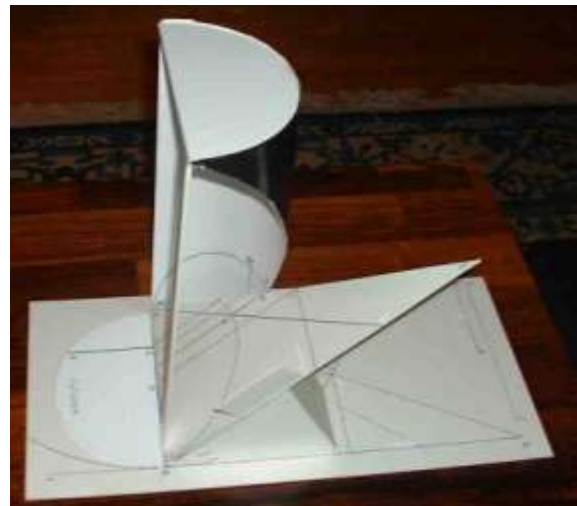
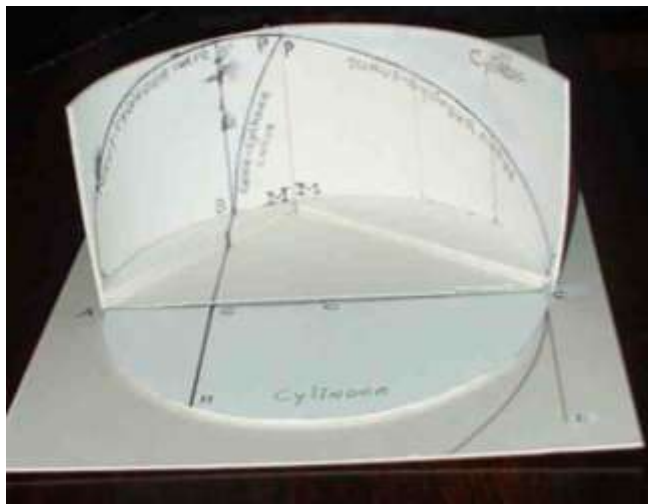
Secondly, what is the boundary condition that Plato established for doubling the square? As the *Meno* demonstrates, you must construct a mean proportional between two continuous squares. So, in the *Timaeus*, Plato will acknowledge that when God created the universe, he required two mean

proportionals between the extremes, thus, making the universe correspond to a quadratic proportional process. As he wrote:

“For whenever in any three numbers, whether cube or square, there is a mean, which is to the last term what the first term is to it, and again, when the mean is to the first term as the last term is to the mean – then the mean becoming first and last, and the first and last both becoming means, they will all of them of necessity come to be the same, and having become the same, with one another, will be all one. If the universal frame had been created a surface only and having no depth, a single mean would have sufficed to bind together itself and the other terms, but now, as the world must be solid, and solid bodies are always compacted not by one but by two, God placed water and air in the mean between fire and earth, and made them have the same proportion so far as was possible – as fire is to air so is air to water, and as air is to water so is water to earth – and thus he bound and put together a visible and tangible heaven.” (Plato, *Collected Dialogues, The Timaeus*, 31c-32c., Translated by B. Jowett, Princeton University Press, 1961.pp. 1163-64.)

This hypothesis also goes back to Hippocrates of Chios who was the first to hypothesize that the doubling of the cube required finding two mean proportionals between two segments whose ratio is 2/1. (See Thomas Heath, *A History of Greek Mathematics*, Vol. I, Dover Publications, N. Y., 1981, p. 200.) This hypothesis is very interesting because the two segments in proportion of 2/1 are given in the plane and the solution cannot be found in the plane. This is the second bounding condition.

[Give the example of how to construct four equilateral triangles with six sticks of the same length.]



Torus-Cylinder Curve intersecting the Cone-Cylinder Curve at point P.

**Figure 7** The two **Bold Curves**

Since the two mean proportionals cannot be found in the linear plane domain, we must look for them in the non-linear complex solid domain. This is where Archytas proposed a complex form of non-linear interaction by means of which you must find two mean proportionals between two extremes in proportion of 2/1. So, in order to achieve that purpose, he proposed to rotate **a Zero Degree Torus and a**

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**Right Angle Cone around a Cylinder.** As a result, he generated two bold curves that intersected each other at right angle. (Figure 7)

My hypothesis, however, is that Archytas started from the top down and that he looked for a generative process that was not a cube, but which could generate a series of cubes, something similar to the spherical action that generated the *Five Platonic solids*. It was Eratosthenes who later established the continuous series of mean proportionals that he called Mezolabe. In other words, Archytas may have thought that if doubling the square required a singly-connected circular action, then, the doubling of the cube might require a doubly connected circular motion, which is what is required to generate a Torus, a Cone, and a Cylinder. One thing is certain, however, and that is, the underlying principle had nothing to do with the sense perception objects of a Torus, a Cone, and a Cylinder. It was in the complex action behind those solids that a self-bounding principle had to be found by inferential thinking. My still unanswered question is why he didn't include the sphere in his process, because this is where I would have started first. (He may have tried the sphere, but without success. But, I will answer that question later.)

Here, you have to conceive of a relationship of a Torus and a Cone rotating inside of a fixed Cylinder, and defining two **bold curves**, marking the intersection of two completely closed motions at right angle to each other, and locating their imprint on the surface of the cylinder. Indeed, this is a most fascinating trinitarian function. The two **bold curves** are the Torus-Cylinder Curve and the Cone-Cylinder curve. What is the significance of those two **bold curves**? The point **P** where the two curves intersect each other on the surface of the cylinder is the locus of the first mean proportional that Archytas was looking for. The second mean proportional is located at point **M**, which is perpendicular to **P** on the base of the Cylinder. Voila, you have constructed the two mean proportionals between two lengths **AB** and **AC**, whose ratio is 2/1. Thus, the proportionality of doubling of the cube is: **AB : AM :: AM : AP :: AP : AC**.

The process involves a series of contradictions for sense perception and for mathematics, because it implies the knowledge that the harmonic boundaries of the universe lie outside of our sense perception. The process also implies, as Lyn noted many times, the existence of a model which involves both the minimum and the maximum to such a degree that *what is it outside of sense perception must control the behavior of the mind in the very small and the very large*. Furthermore, this model reflects what powers the cycles of increases in energy-flux-density in the human mind. Therefore, our investigation inevitably leads us to inquire how those cycles which determine the boundary conditions of human behavior also determine the *quantum of entanglement* in the physical universe. In other words, such a *noospherical quantum of entanglement* relates to both the well-tempered musical system and the Solar System as does the doubling of the cube of Archytas? (Figure 8)

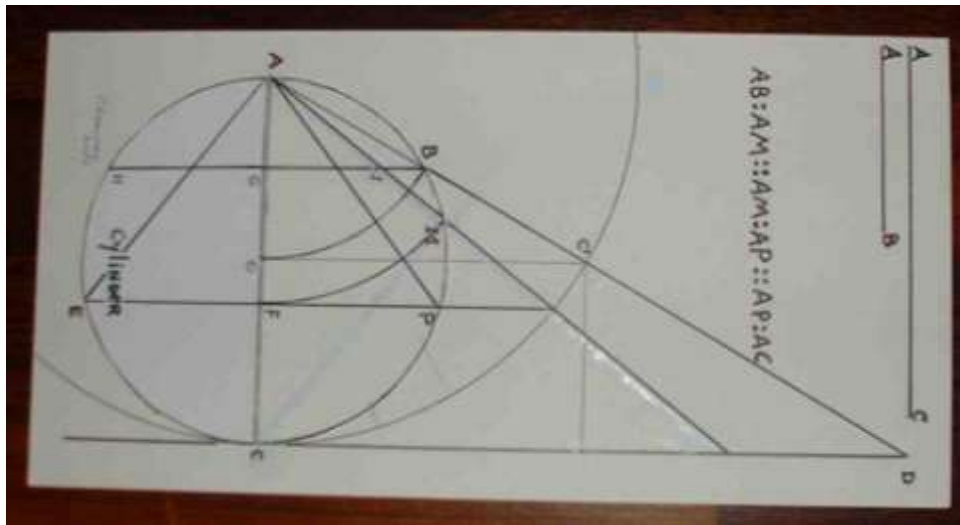
THE PLANETARY ORBITS AND THE EQUAL-TEMPERED MUSICAL SYSTEM							
by WILLIAM BOHDAN							
PLANETS	ASTRO. UNITS	Log 10X	ADDED CONSTANT	MULTIPLE CONSTANT	CYCLE EQUIVALENT	MUSICAL CYCLES	PLANETS
MERCURY	(P) 0.310	0.5086	+2.496	x 128.8	255.97	C = 256	MERCURY
MERCURY	(A) 0.470	0.3279	" "	" "	279.25	C# = 271.22	MERCURY
VENUS	(P) 0.715	0.1457	" "	" "	302.72	D = 287.35	VENUS
VENUS	(A) 0.725	0.1397	" "	" "	303.49	E <sub>b</sub> = 304.44	VENUS
EARTH	(P) 0.983	0.0074	" "	" "	320.52		EARTH
EARTH	(A) 1.017	0.0073	" "	" "	322.42	E = 322.54	EARTH
MARS	(P) 1.379	0.1396	" "	" "	339.46	F = 341.72	MARS
MARS	(A) 1.661	0.2204	" "	" "	349.86		MARS
ASTEROIDS	(P) 2.2	0.3424	" "	" "	363.32	F# = 362.04	ASTEROIDS
ASTEROIDS	(A) 3.6	0.5563	" "	" "	393.13	G = 383.57	ASTEROIDS
JUPITER	(P) 4.95	0.6946	" "	" "	410.95	A <sub>b</sub> = 406.37	JUPITER
JUPITER	(A) 5.45	0.7364	" "	" "	416.33		JUPITER
SATURN	(P) 9.006	0.9545	" "	" "	444.43	A = 430.54	SATURN
SATURN	(A) 10.074	1.0032	" "	" "	450.69	B <sub>b</sub> = 456.14	SATURN
URANUS	(P) 18.288	1.2622	" "	" "	484.05	B = 483.26	URANUS
URANUS	(A) 20.092	1.3030	" "	" "	489.31		URANUS
NEPTUNE	(P) 29.799	1.4742	" "	" "	511.36		NEPTUNE
NEPTUNE	(A) 30.341	1.4820	" "	" "	512.37	C = 512	NEPTUNE

**Figure 8** The Archytas proportionality of  $AB : AM :: AM : AP :: AP : AC$  relates to the intervals of action between **Mercury, Earth, Jupiter, and Neptune** such that the cubic values of their respective astronomical distances are proportional to the cubic values of the musical intervals of action between **C, E, A<sub>b</sub>, C** in the well-tempered system.

So now, let's inverse the process and start from the proportionality that Archytas discovered, that is,  $AB : AM :: AM : AP :: AP : AC$ , and let's see what proportionality it was the shadow of in more ancient times. The curious anomaly, here, is that the biquadratic proportion of the Archytas model was determined by a single angular rotation of the cone which turns out to be in correspondence with the Kepler triangle. Next, think that through that single shadow, you can recast the spherics that generated the Great Pyramid of Egypt and the Five Platonic Solids. In other words, you can generate a *noospherical quantum entanglement* from which the missing link between Ancient Egypt and Ancient Greece snaps into place when you have reached the Archytas angle of intersection. (See my report on: [PYTHAGOREAN SPHERICS: THE MISSING LINK BETWEEN EGYPT AND GREECE.](#))

#### 4. THE DOUBLING OF THE CUBE AND THE SHADOW OF THE GREAT PYRAMID

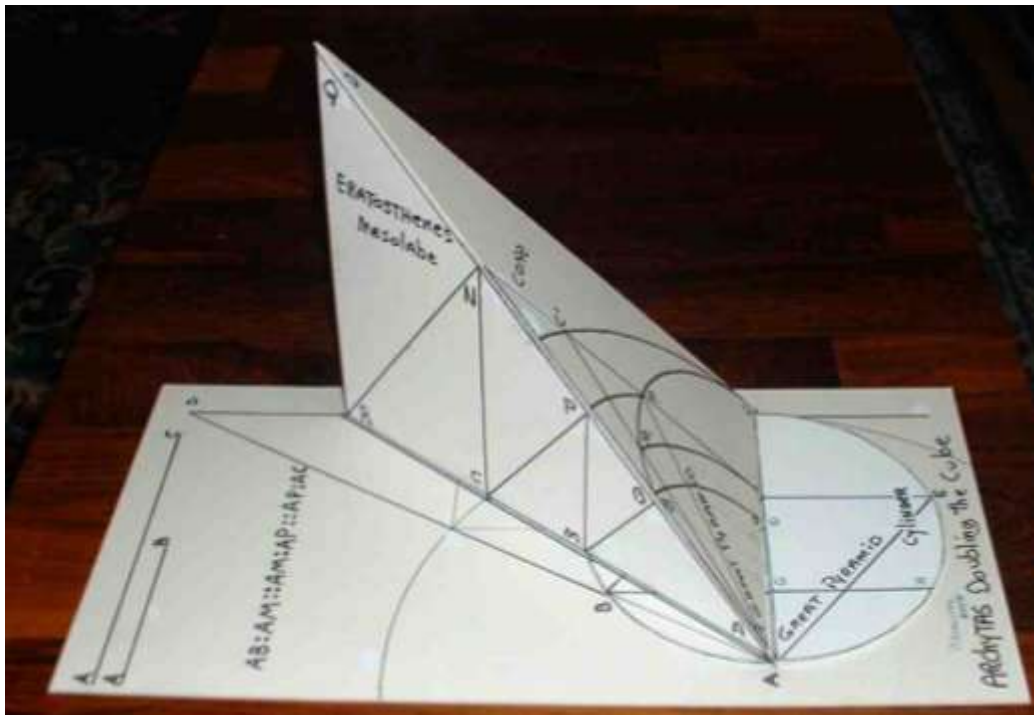
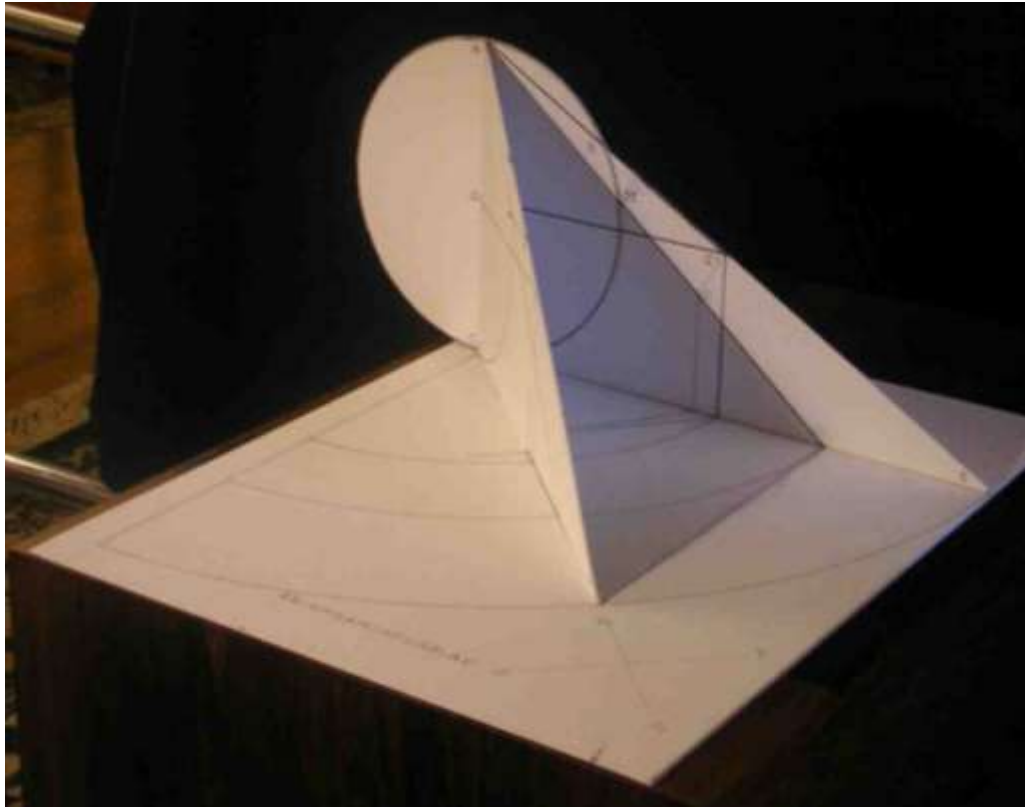
Next, change your point of view and conceptualize the whole process differently. Imagine yourself going back about 5,000 years to the Plateau of Giza in Egypt and you are taking your bearing from the North Star for the purpose of constructing the Great Pyramid. If you project a ray **ABD** from the



North Pole of a sphere onto the plane you are standing on, you have done the equivalent of establishing the latitude location of the Great Pyramid with respect to the North Star; that is, 30 degrees. This can be projected as in **Figure 9**.

**Figure 9** Projection of a 90-60-30 degrees triangle **ACD** from the pole of a sphere to the plane.

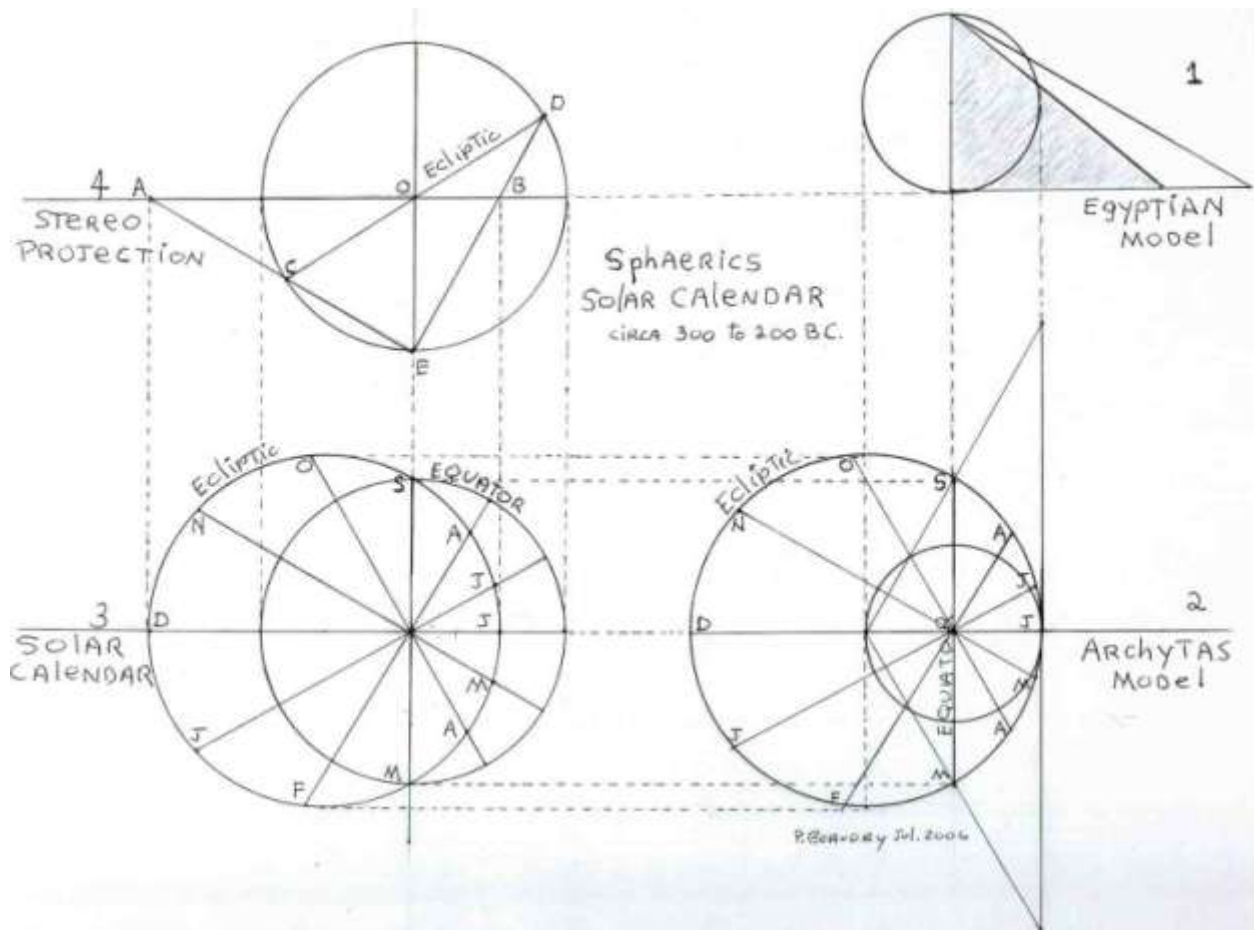
There is a very nice anomaly that comes out of the projection of the sphere when you rotate the whole Archytas construction as a unit. Take the base-plate of the previous model, and rotate it by 90 degrees onto its side. The circle of the cylinder becomes the meridian circle of a sphere. By this simple circular action, you have transformed the cylinder-based system into a spherical model with the same boundary conditions as before, but this time, you can now generate the same two mean proportionals through the projection of the shadow of the Great Pyramid. If you rotate the 30-60-90 triangle **ACD** by a 45% angle from the hinge of the spherical diameter, the solid shadow area of this rotation generates half of the triangular meridian of the Great Pyramid on its top side. That shadow of the Great Pyramid corresponds to the Eratosthenes Mesolabe and to the Kepler triangle. (**Figure 10**)



**Figure 10** The shadow of the Great Pyramid as the Eratosthenes Mesolabe.

**CONCLUSION**

Once you have discovered that it is the shadow of the Great Pyramid which is the original model for the doubling of the cube, you also can realize that what Archytas had established with the two bold curves, was an original calendar of the solar cycle. The ancients were already thinking in terms of the Solar System as a whole, instead of Earth thinking. Now, if you want to understand that difference, you must compare the cycle of **Figure 3** with the cycle of **Figure 11**. The generation of the Sun's yearly astronomical cycle later became the basis for the development of the Astrolabe.



**Figure 11** The transformation of the Archytas model for doubling the cube into the solar calendar of the astrolabe. Compare with **Figure 3**

Thus, you have demonstrated, by construction alone, that the Ancient Egyptians and the Ancient Greeks had knowledge of Spherics based *epistemological constructive geometry* from which they could generate increases in energy-flux density in their minds by determining the bounding conditions under which both the Cosmos and the human mind evolved as per the future oriented Noosphere of Vernadsky.



One look at the bounding power of the human mind throughout history and you witness the same thing. Society was able to develop because the social human mind was determined by axiomatic changes in the bounding conditions of their mental interactions at crucial periods of renaissances. And when you study in that way the curvature of the boundedness of a society's inferential thinking, you can forecast where it is going to go in the future. That's the whole point about the study of cycles and boundary conditions of your mind.

That's what the replacing of underlying assumptions by new principles is all about. You've got to look for them and study them closely and carefully, because these principles are the characteristics of the

cycles of behavior of all human societies. Public opinion is filled with repeated cycles of presumptions, or assumptions, and once you understand their limited cyclical behavior, you can forecast, how and when, under certain internal and external circumstances, that society will be growing or will be destroyed. If you fail to understand those underlying assumptions, and do not replace them in time by appropriate new principles that did not exist before, then, you're in trouble and you're going to be bamboozled by the ruling oligarchies of your day, because, without knowing that crucial knowledge, you are going to become destroyed by your own underlying assumptions that oligarchism keeps playing on, and you won't be able to know when your own self-bondage conditions will ever come to an end.



**Figure 12** Medallion of the Egyptian Pyramid proportionality for doubling the cube.

The study of epistemology is precisely the study of how some bounding conditions affect and interact with the bounding conditions of other people in a human society and with the universe as a whole. That's what the chemistry of *inferential knowledge* is all about. That's the chemistry that is required to make axiomatic changes in the world today. And, that's what the mastery of science and of classical artistic composition will help you understand as the new quadratic principle of fusion is infused among men.

Make sure you don't forget what Lyn said: "*Believe nothing that for which you cannot give, yourself, a constructive proof.*"

FIN