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# ARCHYTAS AND THE PRINCIPLE OF PROPORTIONALITY

**A contribution toward Lyndon LaRouche's Idea of the Placement of the  
Galactic Human Mind.**

By Pierre Beaudry, 11/27/15

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*“One people, one voice, and one human species.”*

Dehors Debonneheure

## INTRODUCTION: THE GALACTIC VIEW OF MAN

For a little more than a year now, that is, since October of 2014, Lyn has been moving our American organization out of the restricted notion of the nation-state that the United States had been tied down to as an historical exception for over 200 years. Now, it's time for America to break with that *“American exceptionalism”* and grow up to join the human race with a single voice. This is required by Lyn's new Manhattan mental platform for the Galaxy.

Very few Americans are ready, willing, or even able to do that in the immediate period ahead, and even fewer Europeans understand what this move is all about. In spite of that epistemological block, Lyn made the point clear during the NEC Meeting of November 10, 2015. He simply stated:

“We are now in the process of moving our organization as a whole into the area of Manhattan; which is where it should have remained always, according to Alexander Hamilton's intention. Now, what we're getting now

is, we're moving rapidly. First of all, we are clearing up the question of music. We no longer accept mere music; it's a failure, it's a mistake, because it has no placement of the voice; and the basis of everything depends on the placement of the voice. Otherwise, you really don't have a basis of unity. When people use different terms, different words, idiosyncrasies and so forth, and try to make that set of idiosyncrasies and trade styles into a nation; that was always a failure, that was always an error.

And what we're seeing now, which I began to put into effect in October of 2014, my intention from that point on has been to eliminate that kind of system among the states; which is a change that must occur if the competence of the United States is to be brought into being.

Now what's happening, we've taken the placement of the voice, the true placement of the human voice, which is not a snarl or a growl or a coughing up of things; but it's a way which is not mathematical. Mathematics is the enemy of the human mind; it always has been. And the point is that mankind's creative powers, the placement of the voice as such, is the principle of organization of a competent society. And that's where we are now; it's coming on fast. We're not getting all the results we would like to get immediately, but they're coming on fast.

And we're going to accelerate this continuously, because the principle is the placement of the voice, and you have a model of this in the case of Furtwängler's work. Furtwängler's work fits precisely into that question of the placement of the human singing voice. And what we're doing is, we're re-assembling our organization in that area; not just in Manhattan, not just in the New York organization, but in the surrounding area. We are now creating a new kind of understanding of what the United States always was intended to be. And now we're going to have to make it come to be what it always should have been, advocated by Alexander Hamilton and such people as that." (Lyndon LaRouche, [\*LaRouche: To Save Civilization, Place Your Voice!\*](#) EIR, November 20, 2015)

In that sense, “*placement*” is looking for the true way to be human in changing times. In that sense, what Lyn is calling for is for the United States to be transformed into *one people, one voice, and one humanity*. That’s the mission and that is what the creation of the United States was intended to become in the first place, a beacon for the *United States of the World*.

My small contribution to this is to demonstrate and actually generate, performatively, the required Galactic proportionality that is needed for this purpose, which had been established since the creation of the Pyramids of Ancient Egypt, and further developed by the Greek Renaissance that followed with Plato and Archytas. The Italian Renaissance was the last time the same idea was successfully applied, especially with Nicholas of Cusa, Brunelleschi, Leonardo and Raphael. The following exchange of question and answer with Lyn reflects clearly the intention behind such a momentous historical change:

“Question:

Hello, Mr. LaRouche. It is truly an honor to meet you. Pretty much, I have a comment: You know, we are now on the threshold of a new Renaissance; I’m cautiously optimistic about that. We’re on the verge of a new Renaissance for all mankind. As a matter of fact, we’re probably entering into an era of human consciousness and development that will prove to be as significant as when man first created fire. We’ve got a ways to go, and much work to do.

LaRouche:

Yes! [chuckles]

Question continues:

... but we’re making the transition, I believe, from simply a planetary species to an intergalactic species. But what is going on here on Earth resonates with the rest of the Universe, and way beyond that, and man is changing geopolitically, economically, morally, culturally, and spiritually, and this profound change in man’s way of thinking coincides with the change permeating throughout our Universe.

I just wanted your thoughts on that, sir.”

### **No Understanding of the Meaning of Man**

LaRouche: Well, the problem is we don't have a population that is organized in its behavior to meet the challenge of the subject that you just presented. Very few people in the United States have any understanding, any comprehension, of what all this means. That is, what is there about mankind, such that an individual member of mankind knows what — in a sense, — knows what track mankind must be on? And maybe it's just that person who has that view; but what we want is an understanding of those kinds of reactions, where people are reacting to find the truth about what our mission is in society. We have to develop that capability.

The problem is based on the Twentieth Century, and I'm going to get a little heavy on this thing, because it's very important,—you've raised the question and it has to be dealt with this way. Mankind went down, in a streak of degeneration, with the arrival of Bertrand Russell. We had only one competent scientist in the Twentieth Century. He was a great scientist, but he was the only one who had this quality: Einstein. Einstein was unique.

Since that time, we have people who are trying to struggle, to realize that kind of goal, but they're handicapped by the society which surrounds them, because popular opinion does not recognize the truth,—almost on every situation. Popular opinion in the United States, and I can say fairly, at a good guess, in Europe too,—that there has been a degeneration in the quality of the human mind, the human mind of individuals, since the beginning of the Twentieth Century. That's a fact.

Now, if you're going to be successful, you have to abandon that now-conventional system. For example, people will use mathematics, and say mathematics is science; well, mathematics is not science; mathematics is a fraud. And Einstein made that point very clear. So what people have done in schools, in their school education, in their other higher education relatively — most people have been educated to believe in things that are actually stupid or worse than stupid.

So, therefore, if you want to get mankind in the kind of direction that you and I have just exchanged, we have to realize that we have to change the way people think, because they've been conditioned, by schools, education schools, by trades, by gossip. The people of the United States in particular, have generally no competent comprehension of the real meaning of the human species. And that's been a distortion; and the use of mathematics has been the chief source of corruption, which prevents the minds of our citizens from understanding what the reality of economy is, and of society." (From Lyndon LaRouche's October 29, Fireside Chat: [On Our Mission, Commitment, and Method](#), EIR, November 6, 2015.)

## 1. ARCHYTAS AND THE PRINCIPLE OF PROPORTIONALITY

*"The Great Pyramid is to the Doubling of the Cube as the Doubling of the Cube is to the Spherical generation of the Five Platonic Solids, in the same proportion as the Spherical generation of the Five Platonic Solids is to the register shifts of all six Human Voices taken three by three."*

Dehors Debonneheure

The idea of "*placement*" of the singing voice is fundamentally a question of proportionality; an incommensurable proportion between God's design for mankind and man's acting on his understanding of His design. Thus, "*placement*" is a performative function of change that locks the human mind into a higher state of existence within the universe.

As Lyn identified its origin, this idea of placement comes from the Italian School of beautiful singing known as "*bel canto*," that is, where the voice is capable of properly resonating throughout all of the cavities of the human body, chest and head. The "*bel canto*" singer is able to identify that change from one to the other by the sole action of placement of the voice.

The point that I wish to emphasize, here, is not the voice per se, but the change that takes place in that placement. It is that change between the lower chest register and the higher head register which reflects the change in geometry of the fundamental action of progress in the universe.

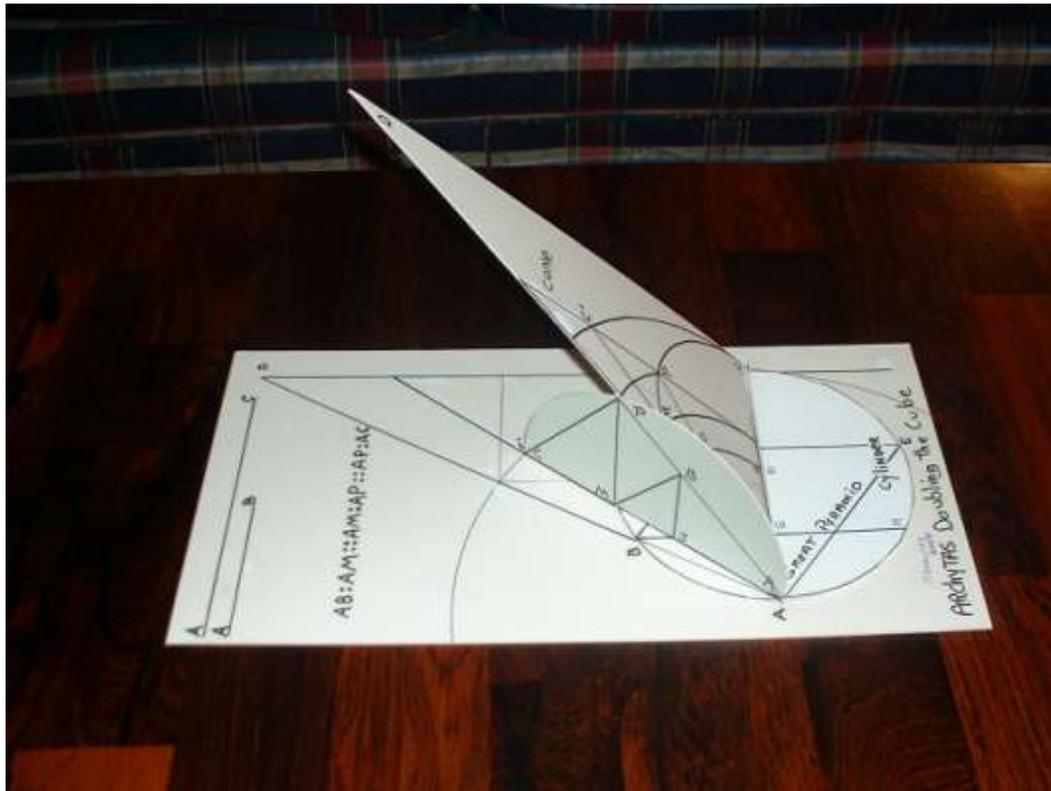
I have used, in previous reports, the notion of a performative function whereby the effect of an articulated enunciation was not merely intended to describe the meaning of what was said, as if it were to be understood by mere deductive knowledge, but was, actually, the action of generating what its intention was meant to produce; that is, to cause an irreversible axiomatic change to take place in the mind of the reader. The incommensurable proportionality that produces such an enunciation is reflected in the following geometric form: **AB:AM::AM:AP::AP:AC**. This is the expression of the incommensurable geometry of going from a lower manifold to a higher manifold, which also underlies the Well-Tempered Musical System.

The irony, here, is that mathematics is incapable of expressing such a form of geometry, because mathematics is incapable of dealing with incommensurability. Then, the question is: how do you solve the problem of Doubling the Cube without mathematics?

Here is how Archytas solved the problem by constructive geometry in accordance with the requirements of Hippocrates of Chios. The Hippocrates problem can be formulated as follows: *Given two lengths AC and AB in proportion of two to one, find two mean proportionals AM and AP between them, such that every two consecutive segments are as the sides of two cubes whose volumes are the double of each other.* Such a proportional function of growth can also be related to relationships of a Galactic form.

The key to the Archytas proportionality, however, is that it does not reside in a static function. It resides in the fact that the two mean proportionals can be found only by discovering the curvature of a triply-connected motion; that is, by rotating a Cone and a Torus around a moving Cylinder in a manner such that the point of intersection **P** of the three surfaces of revolution locates and locks into position the placement of a proportion such that the lengths **AM** and **AP** are the two mean

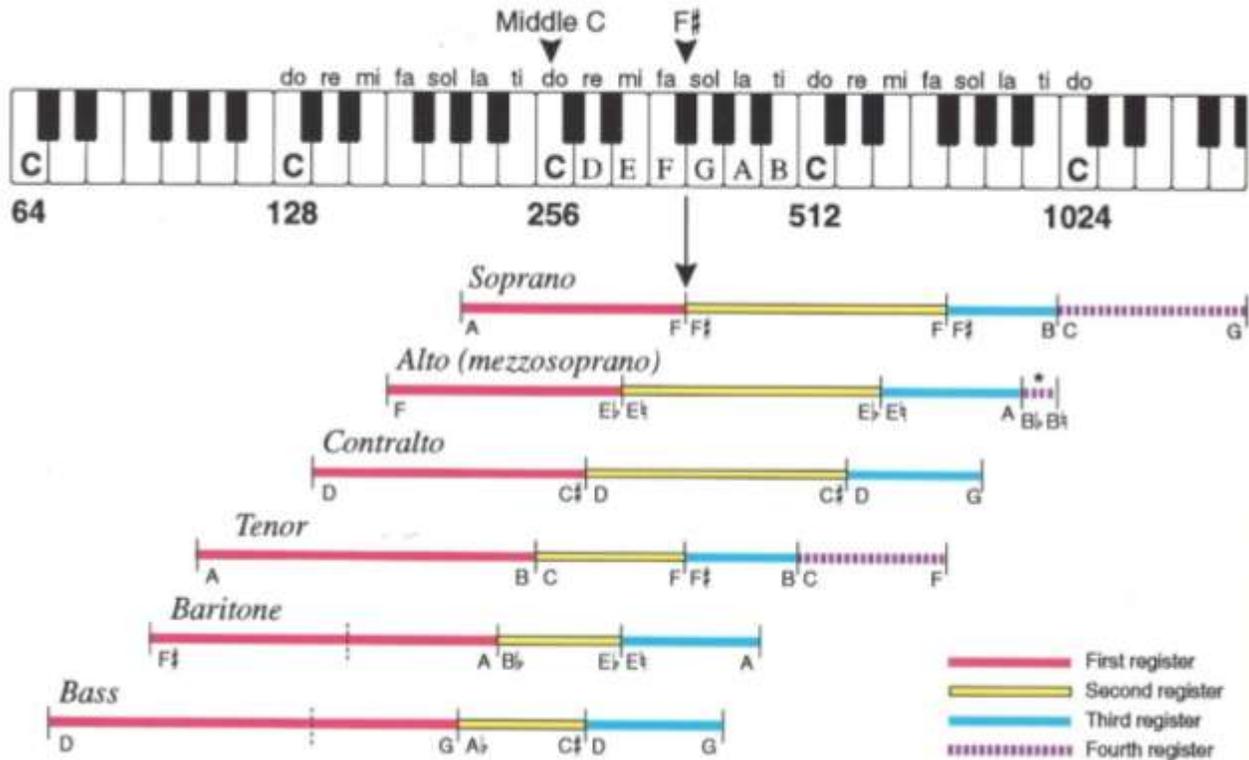
proportionals, and **AB**, **AM**, **AP**, and **AC** represent the sides of four cubes whose volumes are double to each other.



**Figure 1** A geometrical model for the Archytas Doubling of the Cube. The base circle, the upright half-circle, and the rotated right scalene triangle represent, respectively, the base of a Cylinder, the half-cross-section of a Torus of zero degree, and the half-cross-section of a right Cone all intersecting at the locking point **P**, the complex passing locus of doubling the volume of the cube.

What I wish to emphasize in this report is that this triply-connected principle of proportionality represents the necessary musical dissonance that accompanies an axiomatic change when such a proportion takes over the mind. Therefore, my question is: “What is the Galactic significance of such a proportionality and why is it related to the musical ordering of the six human voice register passing tones of **C**, **E**, **Ab**, and **F#**, **Bb**, **D**?” (See **Figure 2**) I do not have an answer to that question yet, but If anyone has a hypothesis or an insight into it, please write to me at [pierrebeaudry@amatterofmind.org](mailto:pierrebeaudry@amatterofmind.org).

### The Six Species of Human Singing Voice, and Their Registers



\* Mezzosoprano "Verdiana" is not strictly a fourth register; see Chapter 4.

**Figure 2** Axiomatic changes of the six human voices and their registers. The axiomatic changes I have chosen to illustrate are the most fundamental ones going from the chest register to the head register; that is, **Tenor C, Bass Ab, Alto E and Soprano F#, Baritone Bb, Contralto D.** (Illustration, Schiller Institute). These, however, are not notes; they are passing tones.

## 2. LYNDON LAROUCHE: "THE SINGING VOICE PLACEMENT IS NOT ABOUT THE VOICE- IT IS WHAT WE SHOULD THINK LIKE..."

The following is an exchange of ideas with Philip Ulanowsky on the subject of the subject of doubling the square and doubling of the cube. I thought it would

be appropriate to use this exchange of emails as part of this pedagogical report, because the timing of the world strategic situation has come when most of the world population will begin to go through an axiomatic transformation during the coming weeks and months immediately ahead, and most of them will be challenged to change completely the way they have been thinking about the world as a whole.

The underlying issue of the idea of the doubling the square or the cube, is a matter of axiomatic change, and the most appropriate form for such an axiomatic change can be found in the register shift of the human singing voice, especially in the change of geometry which takes place when the voice changes from the chest register to the head register. The original framework for this epistemological exercise can be found in the *Meno* dialogue of Plato.

Since this subject is much more complex and difficult than I can handle, I will venture to discuss only some epistemological and geometrical aspects of the question that I know about, by construction, and relate them to what I don't know. Philip's first email letter was the following:

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From Philip Ulanowsky, JUST A THOUGHT, October 29, 2015.

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Friends,

In prepping for a square-doubling exercise for a volunteer day with children at work, the following naïve thought occurred to me. The relationship of side to diagonal in a square is, if I'm not mistaken, always incommensurable; the measure of one of the two must always be an irrational number. If this is true, it pertains to Euclidean flat space. But would it hold true for all curved space? Could curvature related to the Golden Mean create a substantively different relationship, implying something about life? Or, perhaps, is a so-called irrational number merely a reflection of the universal quality of non-static, purposeful development, which pervades even Euclid's space (much to his undoubted chagrin)?

I am at the limits of my geometrical prowess with doubling the square, and haven't a clue to cosines or other, more complicated sinus problems, etc. Therefore,

I share this little thought with no prospect of delving into the realms of those who have already deeply worked through such issues. If I were to comprehend an answer in principle, if such an answer were interesting in the first place, it would probably be by metaphor in the domain of music. I just thought I would share it.

Cheers,  
*Philip*

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Hi Philip,

You are right, but this is not a naïve thought at all. It is, actually quite insightfully filled with epistemological implications. It is the higher domain of the curvature of space-time of the human mind which determines the diagonal of the square, and most emphatically the doubling of the cube [...]

There is an aspect of your question about the doubling of the square which requires some attention, and I don't know if others have picked up on it. It is the fact that the incommensurability between the side of the square and the diagonal of that same square is an epistemological and not a mathematical question, simply because there is no way that mathematics is capable of dealing with such an important reality as a state of "*perplexity*." The truth of the matter is that it is "*perplexity*," or one's "*state of ignorance*," which has to be discovered here, as the entry point to the discovery, and not a number. And mathematicians have always avoided that question altogether.

The same holds true for the curved space question. I think you are absolutely right, "the so-called irrational number is merely a reflection of the universal quality of non-static, purposeful development" of life which could never be captured by the mathematical method, not even with the Cantorian transfinite. There is no such thing as a number for the "curvature" of life, or the "curvature" of mind, and that an irrational or transcendental number is merely a poor shadow expressing the fact that life or mind develops from lower to higher incommensurable manifolds.

I would add, here, that it is the “limits” to mathematics that you have touched on, here, and that your geometrical and epistemological prowess have not yet reached their limits, far from it.

Yours,

Pierre

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After a few more personal exchanges, I responded with the following:

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Hi Phil,

... I forgot to mention this, but I think the best way to think about how this discovery of Doubling the Cube was arrived at by Archytas is to project on the stage of your imagination the **TRIPLY-CONNECTED PROPORTIONALITY** of the heavenly motion as if it were projected on the wall of Plato's Cave. That is my Galactic Hypothesis for doubling the cube. The irony is that the same proportionality underlies the Egyptian 12 Star Polyhedron, which is the Mother of the Five Platonic Solids.

Don't forget that Archytas was playing with three solids of revolution. What happens when the three motions intersect each other at the same point? If you consider the Earth as being a Cylinder, the rotation of a Cone as being the daily motion of the Sun, and the motion of a Torus the cycle of the Celestial Equator across the Ecliptic plane, then you have the making of a galactic astrolabe.

Until we meet again, keep your Lantern lit.

Pierre

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After accepting a meeting to discuss an actual demonstration of how the Archytas Doubling of the Cube works, I sent Philip the following on November 6:

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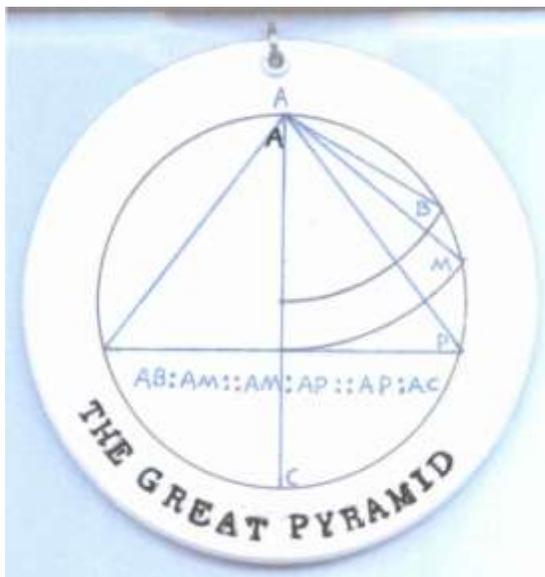
Hi Philip,

Just another thought. Since you attended Lyn's Discussion on Music last Sunday, November 1, 2015, I had a nagging thought about ***“placement”*** that won't

let me alone, and I thought I could bug you with it as well. What Susan B. reported about what Lyn said in her Thursday email, reminded me of the underlying process of generating the Archytas solution for doubling the cube. Here is the bug in the bonnet idea.

What is being communicated is not the music, per se, but the fact that you are being taken over by a *process of proportionality* that is being generated in the mind. For me, it's that proportionality which has to be understood about the *"placement"* and the unity of the musical composition from the Bach use of the Lydian divisions of the well-tempered system. For me, what is to be understood is not the music, as such, but the understanding of this principle of proportionality within the composition of music.

With the process of discovering the doubling of the cube, you have a similar unity of effect taking place in the mind, which we will discuss at your Christmas dinner, but which is not Lydian. That process of doubling of the cube is the same as the principle of construction of the Great Pyramid as well as to the spherical



principle generating the Five Platonic Solids. But, there is something that is still, to this day, completely mysterious to me about its ordering process, which pertains to music and which seems to be superior to the Lydian process, itself: *"Why does the proportionality of doubling of the cube (See medallion in attachment) correspond to the placing of the six register shifts of the six human voices, taken three by three, within the well-tempered system?"* In other words, we are dealing here with something that has to do with all human minds.

In the included medallion, the lengths **AB**, **AM**, **AP**, and **AC** represent the sides of four cubes which are the double in volume of one another. Given that **AC** is a musical octave, the ratios of all of the segments can be made to correspond to

the equal-tempered values of the voice register shifts taken three by three. **Soprano, Baritone, Contralto, and Tenor, Bass, Alto.** Why is there such a correspondence?

Let's think about that between now and Christmas.

Pierre.

### 3. WHY AN AXIOMATIC CHANGE SOUNDS LIKE SILENCE

An axiomatic change feels like losing a degree of stupidity. So, the question is: "How do I free myself from such a state of stupidity and why should I tell everyone about it?" That's really one of the most important questions to ask yourself about life. But, you can't simply tell people to stop being stupid, because you will turn them off and you will only get them upset; you have to tell them they are stupid, because they believe they are incapable of changing. You can also blame the culture and tell them what is wrong with that, but they will not respond appropriately either, because they live in it and they are comfortable with it. So, what do you do?

What you have to do is show people how they can discover an insight into how new and better ideas that never existed before can be developed, and show them how these ideas can help them live better, because they are helping them think better. However, here is the problem. People don't know what to look for. They don't know how to discover new ideas, because they believe that ideas are deduced from what they already know. So, unless they abandon the deductive axioms that created the old ideas they got stuck with in the first place, they will not respond appropriately and will remain stupid. So, that's why I recommend you examine closely the function of *axiomatic changes* that I am now going to discuss.

The example of axiomatic change I chose is located in a geometric process of proportionality which underlies the discovery of principle that Archytas used for Doubling the Cube. It is not obvious that you can do that with the same method that Plato used in the Meno for doubling of the square, because you may be

looking in the wrong place. You have to look for a state of *perplexity*. That's the most important point. Unless you put into question the knowledge that you have already acquired, you cannot discover new ideas. This is also the most difficult thing for people to do, because most people think they are smart and they hate being told they are, actually, quite stupid. [I can give you tons of examples of people who want to kill me because I told them that all they were doing was simply titillating their ego.]

So, the idea is that the hypothesis for the Principle of Proportionality is a Galactic principle which not only determines physical space-time, but also the axiomatic process of change in the human mind, and more specifically, the axiomatic change of a voice register shift, which can only take place in your mind.

I am not going to discuss, here, how a qualified voice master does that or how Archytas made his discovery, because the reader can read about these matters from Lyn and John Sigerson, and you can find some of my geometric constructions in my [Galactic Parking Lot: Advanced Constructive Geometry](#).

The problem I will pose to you, however, is a problem that I have not yet solved, and which leaves me perplexed; that is: *“Why does the proportionality of doubling of the cube correspond to the placing of the six register shifts of the six human voices, taken three by three, within the well-tempered system?”*

What made me think that the proportionality for doubling the cube was necessary for the Lydian divisions of the octave came from the fact that the Doubling of the Cube was fundamentally triply-connected as in the Holy Trinity, and that the musical octave was divided twice into such a unity of three. This is as strange as can be, because if that is true, I have no idea what might be holding these incommensurable things together? It is as mysterious as the Holy Trinity Itself. At this time, I can only say that it can only be the proportionality of the Galaxy which holds and locks all of these things together, but I am not sure, and I cannot demonstrate it otherwise than by the following musical example of Bach.

Take the first Prelude of Bach and find the three Lydian Ranges within the piece. (See **Figure 3**) Then, make the following axiomatic jump to a higher level

by noting how the key signatures of each Doubling of the Cube register shift triads, **C, E, Ab**, and **F#, Bb, D**, generate one another through the three Lydian ranges in the same ordering pattern. Ask yourself: *“Why is this ordering of the six human singing voices **“PLACED”** within the well-tempered system in the same position as the proportionality of the Doubling of the Cube? Why does this arrangement reflect the musical ordering of the entire human species?”*

Was that what Lyn meant when he said that Bach created a new conception in music “which defines what is possible?” I don’t know. But, I do think that this ordering has to do with the Lydian modality and the idea of *“placement”* within that framework.

It defines the future of what is possible to come into being anywhere within the well-tempered system by means of a lawful ordering of change which places the mind in the epistemological condition of making an axiomatic change at a higher level than the individual human voice. That’s the way I see the performative form of the principle of the future; the expectation of the immediate future as an unknown , not as something that is expected to come tomorrow or the next day, but in the immediate future ahead, and its determination from the top down. As Lyn put it with respect to the *“placement:”*

“And that's the characteristic of people like that, Furtwängler, for example. Furtwängler's achievements are absolutely profound. If you don't know what Furtwängler did, you really don't know much about music. And that's the problem; they don't know what it's about. It's the silence. The most powerful thing in all discussion, is silence, that the ability to create knowledge of something in silence, which is the principle of composition, musical composition. And there are various things, like Furtwängler has his own thing, he's very precise on this. And there's some other great composers. Beethoven has a very different kind of operation, great function, but it's also the same thing.

“And I think that's what we're trying to do in understanding the crisis of the United States, and the planet generally, is located in the inability of most people to understand what this means. And I get very frustrated,

because I know people aren't understanding it. And I think that's a matter which in passing through what we do here every Monday. That principle is extremely important, because you've got to get people to come to a point where they understand that principle, can identify it. And then what we're really going to be doing in Brooklyn, and places like that, is actually practicing that. It's not describing it. It's practicing it. The placement of the voice, the placement of the voice, the voice which is known, but not heard. And that's what makes the difference between mankind and clowns. [laughter]" (Lyndon LaRouche, POLICY COMMITTEE DISCUSSION, 11.2.2015)

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And then, Lyn added the following during the Sunday night discussion on music, as reported by Susan Bowen.

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“To understand the technology of that, go to Furtwangler, who, with precision, can deliver what most soloists cannot deliver! Furtwangler was *precise: Placement*. The singing voice placement is not about the voice- *it is what we should think like*. (Longer discussion of the Brooklyn event, church choirs, music and the Manhattan Project and placement -the ability for the individual voices in a choir section to sing as one choral voice (SATB), and then those 4 as one choral voice-- but the key is that what must be *heard* is not in any of that sound. Placement of the voice—something is missing, but by its nature, it is necessary. Voice placement is NOT the singing voice—it is *in between* the notes! Placement is not in the score either.

“Most scientists don't have an active mind. Placement — you discover it while accepting it. There's no name of it. As with Furtwangler and Beethoven's late work — *The idea of placement is placing what is being generated* – and not just in music! (Vs. the evil B. Russell method...) It is what can be heard and what can be understood of what's heard and not heard.” (Lyndon LaRouche, *Sunday's Music discussion*, Susan Bowen Notes, November 1, 2015.)

Prelude 1, C Major

Moderato ♩ = 112

Figure 3 The three Lydian Ranges at measures 12, 14, and 22.

Once you have played those three Lydian ranges in Bach's **Prelude 1, C Major**, that is, at measures 12, 14, and 22, you don't really know what is coming after each, but you know that what is coming is lawfully the result of what you have just discovered with the Lydian combinations you are given to play. You can express that by "stealing time" from these three measures, that is, by playing *a tempo rubato*, in order to account for the Lydian expressiveness that should emerge naturally from the piece.

Such a so-called "freedom of interpretation," is actually a necessary form of dialogue in co-creativity with the author. It not only has the effect of bringing out some of the hidden potentials of the original creator's intentions, but it also has the power of changing the past by understanding that past in a different way. In that sense, the idea of the placement is not a matter of appropriate sound but a matter of placing the mind in relationship with the creator; that is, the placement of the mind within the process of co-creation.

In other words, what is being communicated is not the music, per se, but the fact that you are being taken over by a process of proportionality that is being generated in the mind and with the collaboration of the mind. This is what the idea of the Filioque meant in the Charlemagne tradition, and this is what has to be understood about the unity of the triadic musical generation. What is to be heard is not the music, as such, but the understanding of the music. Let the investigating of the unknown of that process of understanding become the future that takes you over, and then, reflect on its result after the fact. Then, you will have a galactic sense of the discovery that I am talking about, because you are dealing with a triply-connected galactic function.

So, in this performative process, everything comes down to saying what you are doing with a passionate commitment to accomplish a great change. One should study this process very closely, especially the question of *ignorance* of what can or cannot come into knowledge from the future, because it is all about what one doesn't yet know and what one needs to know about it that counts.

Just to give you an example of how to investigate your own ignorance, take the following case of limitation of perception relating to the Archytas model for

doubling the cube. Note how sense perception is limited to curves of double curvature while your mind is not.

If you consider the motion of the Torus and the Cylinder together, your sense perception can follow the double curvature that such a curve traces between them on their common surface contact. However, you cannot have the perception of a Galactic curve of triple curvature. The reason why a Galactic curve is only conceivable and never perceptible is because the human body is limited and can only perceive two directions at the same time: front to back and left to right, or the two articulated together generating a volume which locks into a *gestalt*.

On the other hand a triply-connected motion can only be conceived by abandoning the field of sense perception and by conceiving a triply-connected function such as the Holy Trinity, but the tracing of its triply-connected action cannot be perceived, as such and its triply-connected pathway cannot be traced. This is the reason why the triply-connected pathway of the Torus, Cylinder, and Cone can never be seen. The irony here, with the Archytas discovery, is that there is only one point **P** where the triply-connected motion intersects, and that point, which locks your mind to the truth, also expresses the limit of sense perception.

The point, however, is that you cannot learn how to use this creative method, even after you have been shown how to use it. Why? Because, there is no formula for creativity and you cannot know in advance what your ignorance will be like in the future. You cannot teach creativity and you cannot learn creativity from someone else. You can only discover how to become creative by becoming co-creator with someone who is already creative and dare to push and transform his ideas beyond their previous limitations by getting new insights into them, and thus, get closer to the truth.

Take, for example, the case of the extraordinary Galactic Silk-Road Muslim Renaissance historian, Al-Masudi (896-956), who wrote all of his historical reports by gathering gems from people's under-lying assumptions and fighting for the truth of their acknowledgement along that entire dangerous traveling route. As Masudi said:

“We can compare our course across the world to the progress of the Sun across the heavens, and apply the following verses of the poet to ourselves:

‘He has travelled the world in all directions,  
Now in the farthest East, now in the West.  
Like the Sun in its course, his journey reaches countries so remote  
That no caravan has ever dared penetrate them.’

“... Even the cleverest and most judicious minds have neglected extensive areas, each one specializing in a particular field. Every clime has peculiarities familiar to its inhabitants, but he who has never left his hearth and has confined his researches to the narrow field of the history of his own country cannot be compared to the courageous traveler who has worn out his life in journeys of explorations to distant parts and each day has faced danger in order to persevere in excavating the mines of knowledge and in snatching precious fragments of the past from oblivion.” (Mas’udi, *The Meadows of Gold*, Penguin Book,, New York, 2007, pp. 3-4.)

See Hussein Askary’s video on this “Ancient Image of the Future”. [THE SILK ROAD AS A VEHICLE OF CIVILIZATIONS by Hussein Askary](#)

This is how you can change the way people think, along the Silk Road, but it is a dangerous trade route, not because of bandits and other such like vermin, but because what you have to do, is to set yourself up as an example for someone else to replicate, as Masudi did, by helping someone else develop his own creative powers with insights into his own genius. And that is a most dangerous task.

If you wish to hear what some such well-ordered dissonant relationships sound like in music, play the following Performative Lydian Cycle on a keyboard and locate the principle of proportionality within the process. (**Figure 4**)

P. BEAUDRY      PERFORMATIVE LYDIAN CYCLE      Oct. 2013

**Figure 4** Lydian Triad generated by the principle of proportionality of doubling the Cube.

## CONCLUSION

In conclusion, I would add that by doubling the cube, Archytas did much more than simply add a third dimensionality to the plane solution of doubling of the square, he also established the limits to sense perception in science. The most remarkable thing about the Archytas construction of Doubling the Cube is that it solves, very early on in history, the Euclidean problem of “flat Earth thinking” by projecting your mind into a future LaRouche-Riemann-Einstein form of Galactic thinking. The dimension that most people forget to identify with Archytas is that of motion, and most emphatically, the triply-connected form of motion of the human mind, which is galactic and musical in character; that is, which pertains to a domain of simultaneity of eternity that could be identified as a higher domain of *epistemological-physical-space-time*. (See my paper on [THE PLATONIC SIGNIFICANCE OF EINSTEIN'S THEORY OF GENERAL RELATIVITY](#).)

By adding such a complex motion to the problem solving process of human thinking, Archytas went beyond his own discovery of the three means of musical composition: the arithmetic, the geometric, and the harmonic means. By solving the Hipparchus problem of finding two mean proportionals between two extremes, Archytas established a galactic pathway for discovering a higher domain of creative ordering in musical composition from a standpoint that is proper to the LaRouche principle of increasing energy-flux-density. Archytas had an extraordinary insight into that galactic perspective when he investigated the notion of limits to the universe as the limit of sense perception, from the top down, As he put it:

“If I were at the outside, say at the heaven of the fixed stars, could I stretch my hand or my stick outward or not? To suppose that I could not is absurd; and if I can stretch it out, that which is outside must be either body or space (it makes no difference which it is, as we shall see). We may then in the same way get to the outside of that again, and so on, asking on arrival at

each new limit the same question; and if there is always a new place to which the stick may be held out, this clearly involves extension without



limit. If now what so extends is body, the proposition is proved; but even if it is space, then since space is that in which body is or can be, and in the case of eternal things we must treat that which potentially is as being, it follows equally that there must be body and space (extending) without limit.” (Archytas quoted by Thomas Heath, *A History of Greek*

*Mathematics*, Volume I, Dover Publication, New York, 1981, p. 214)

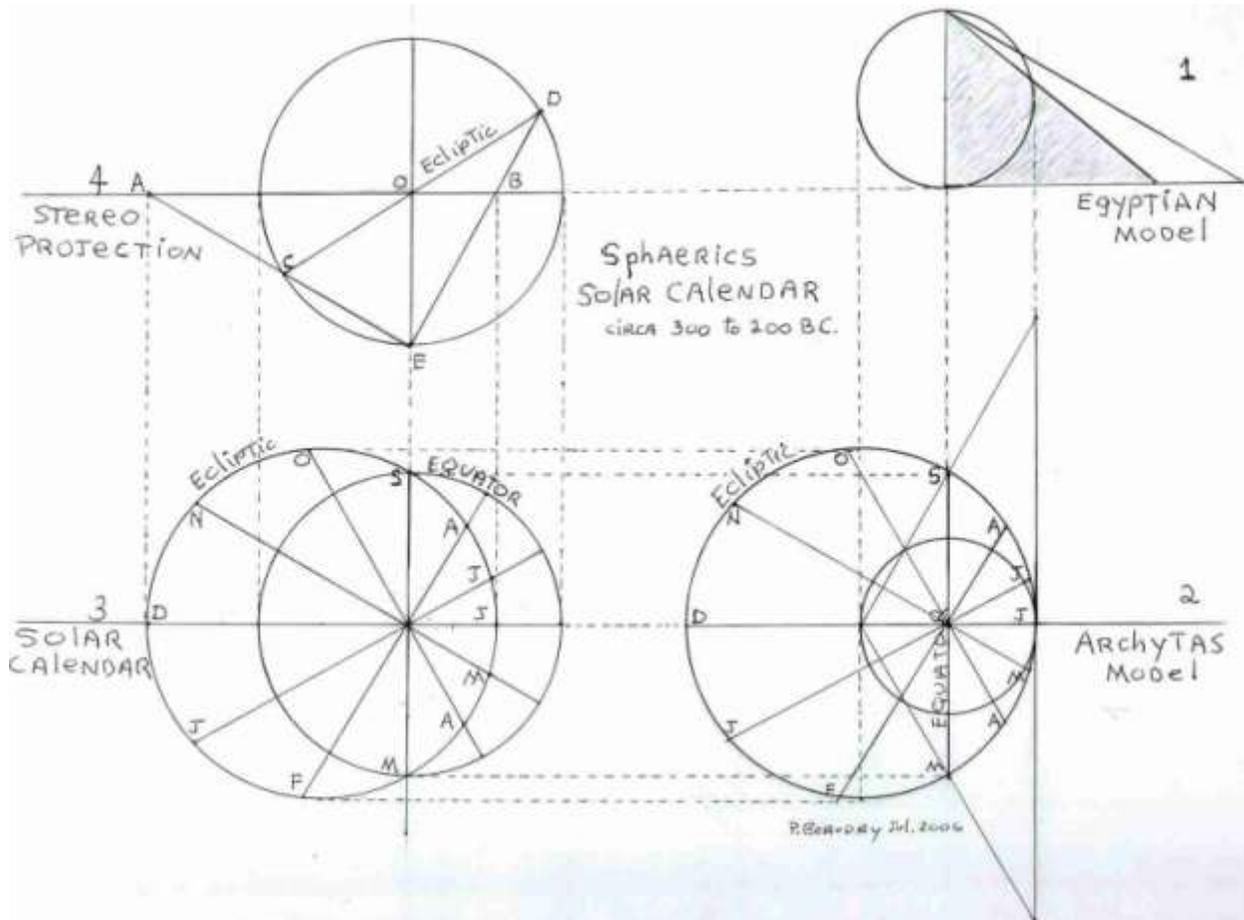
**Figure 5** The Flammarion Woodcut: The Limits of Sense Perception.

Now, what happens when you imagine that using the stick of Archytas is simply like using your own mind investigating your defective apparatus of sense perception?

Allow yourself to extract from this experiment the required pathway to go beyond the limit of what you already know. The best way to illustrate this process of discovery of principle is to relate the shadows of the Archytas construction to some of the elementary constructions for the astrolabe that may have been made in ancient times by such discoverer astronomers as Hipparchus.

Therefore, there is but a simple mental jump to be made from one domain to the next, via the same principle of proportionality that we have just discussed, and which will take you into an actual precise knowledge of your own ignorance.

Consider the following conceptual transformation as the appropriate leap which will take you back to the future:



**Figure 6** Beyond the limit of sense perception. Conceptual transformation from the Archytas model for Doubling the Cube to the Hipparchus stereographic projection of the Ecliptic onto the plate of an astrolabe. Add your position on Earth with the time of day to the yearly cycle of the Sun and you have located the “*placement*” of your mind in the Galaxy.

**FIN**