

RAPHAEL AND LEONARDO PUZZLES DEMONSTRATING HOW A PARADIGM SHIFT OPERATES

by Pierre Beaudry 10/04/2020



Figure 1. Raphael's Altar design in *The Dispute of the Holy Sacrament*

The entire planet is about to undergo a historical paradigm shift. Such an extraordinary moment, whose reason most people will not fully understand until much later, is nevertheless going to shake everyone to the core, because it will require every human being to look at the truth of the present world crisis situation, head on; and that will be frightening. This event will be a moment of emotional challenge for every human being without exception, because the truth of what people will not want to accept will be visible for everyone to see. In fact, this event will be the first in history to affect all human beings at the same time and will tend to unite every individual from around the globe for the common aims of mankind. My intention, here, is not to forecast what such an event will be, but to show you how you can see it coming by giving you an example of how a paradigm shift takes place in your mind through a unique experiment with a classical artistic composition. What I am about to show you has no visible resemblance with the name and the event that is about to take place in the world, and its full significance will not really be known to you until that historical event has hit you. All that this report can do, therefore, is to show you how to look for that coming event from the future, ahead of time, and expect to cope with it with optimism and without emotional distress. The following experiment of a geometrical paradigm shift is a crucial mental experiment designed for discovering and solving Nicholas of Cusa's principle of the *coincidence of opposite*; that is, the non-visible subject matter underlying both of Raphael's *The School of Athens* and *The Dispute of the Holy Sacrament*.¹

WHEN TRUTH BY FAITH BECOMES ONE WITH TRUTH BY REASON

The two most significant subjects of Raphael's two frescos located in the *Stanza della Segnatura* in the Vatican are on opposite sides of the room facing each other as mirror images of each other. The reader must imagine himself standing puzzled in the middle of the room between the two. The discovery to be made here is: *truth revealed by faith is the same as truth discovered by reason*. How to unify those two opposite truths is the central question. How do you intertwine these two axiomatically different truths and solve the conflict between the

¹ See my reports: [RAPHAEL SANZIO, THE SCHOOL OF ATHENS AND THE DISPUTE, PART I](#), and [RAPHAEL SANZIO, THE SCHOOL OF ATHENS AND THE DISPUTE, PART II](#).

authoritarian truth of religion and the reasonable truth of philosophy? The key to discovering the solution to this puzzle is found in the opposition between Plato and Aristotle, and is discoverable through generating a paradigm shift, or an axiomatic change, inside of your mind by replacing the axiom of deductive logic with the axiom of ironies.

The puzzle on the frontal side of Raphael's altar (Figure 1.) shows how such a playful spiritual exercise can solve the dispute between Plato and Aristotle by causing the spectator to experience the process of an axiomatic change and make his mind go from a lower manifold to a higher manifold, thus, causing a coincidence between the authority of the mind and the authority of faith. Such an experiment is also a way of solving the mystery of the *Filioque* by epistemological means. A similar solution to the conflict between Plato and Aristotle was brought about inside of the early Church with Saint Irenaeus of Lyons, who solved the problem of heresies at the beginning of Christianity, and also with Saint Augustine later; but, at the beginning of the twelfth century, the opposition between those two truths turned into an open conflict of doctrine between the *authoritarian* Dominicans and the *agapic* Franciscans.

Pope Innocent III (1198-1216) embodied the deadly nature of this conflict by giving his support to both St. Francis of Assisi, the creator of the Franciscans, and to St. Dominic, the creator of the Dominicans who was authorized to lead the Albigensian Crusade in the Languedoc of Southern France, where, under Pope Innocent III's command, the Church committed genocide against the Cathars during a 27 year period (1202-1229) of outright slaughter of their population. The later official adoption by the Church of an Aristotelian-Thomist theology served as a justification for the genocide which brought this doctrinal opposition between the Dominicans and the Franciscans to a crisis point that only a few artists of the Italian Renaissance succeeded in solving in part.

In December 1999, Cardinal Joseph Ratzinger (later Pope Benedict VI) issued a study on the subject "*The Church and the Faults of the Past*"² which included a written request from Pope John Paul II, asking forgiveness

² [MEMORY AND RECONCILIATION: THE CHURCH AND THE FAULTS OF THE PAST.](#)

for the errors of the Church over the past 2,000 years, but without mentioning the genocidal Crusade against the Cathars. The Cathar question has yet to be resolved officially and explicitly by the papacy.³

As Raphael portrayed the matter in his fresco, such a problem must be treated with special care and from the highest spiritual level, through understanding the Platonic method of generating truthful ironies as ways to solving paradoxes. Raphael's *The School of Athens* and *The Dispute of the Holy Sacrament* are the most powerful pedagogical instruments representing how such a disputed question could be resolved from a performative epistemological standpoint; that is, *by making the truth of faith and the truth of reason coincide into a multiply-connected series of intertwined knots*. The two frescos are filled with such knots and investigators are not yet near the end of discovering them.

One of the most visible ironies that Raphael introduced in *The Dispute of the Holy Sacrament* was to paint himself as a Pope wearing a white tiara (Figure 3.), seeking the attention of the spectator on the left side of the fresco, as if to ask him, “what do you think this is all about?”; and on the right side, he painted the portrait of Pope Innocent III seeking the attention of Thomas Aquinas, as if to say to him, “you better back me up on these Decretals, or else.” (Figure 4.) The respective left eyes of Raphael and of Innocent III are precisely at equal linear distances from the central ostensory. (Figure 2.) Why such a precise linear opposition? Because Raphael wanted to have the spectator discover the spiritual side of this Plato/Aristotle opposition within the Church, before he tackled the epistemological side of the same subject in *The School of Athens* a few years later.

Raphael portrayed Pope Innocent III starring menacingly at the foremost Aristotelian of the Church, Thomas Aquinas, whom he never actually met in real life, but who later wrote a theological justification for putting to death heretics; thus, giving posthumously his “*imprimatur*” to Innocent III’s genocide against the Cathars. Aquinas wrote: “There is the sin, whereby they (the heretics) deserve not only to be separated from the Church by

³ See my report: [RAPHAEL'S 'DISPUTE OF THE HOLY SACRAMENT' AND THE ANOMALY OF POPE INNOCENT III.](#)

excommunication, but also to be shut off from the world by death. For it is a much more serious matter to corrupt faith, through which comes the soul's life, than to forge money, through which temporal life is supported. Hence if forgers of money or other malefactors are straightaway justly put to death by secular princes, with much more justice can heretics, immediately upon conviction, be not only excommunicated but also put to death." (Thomas Aquinas, *Summa Theologia*, ii, Q. xi. Article III.) Note how the Aristotelian deductive logic of Aquinas's theological argument falls like a guillotine on the necks of heretics.

Start here: ↓-----^-----◇



Figure 2. The coincidence of opposites between Raphael (extreme left) and Pope Innocent III (extreme right)



3. Raphael self-portrait

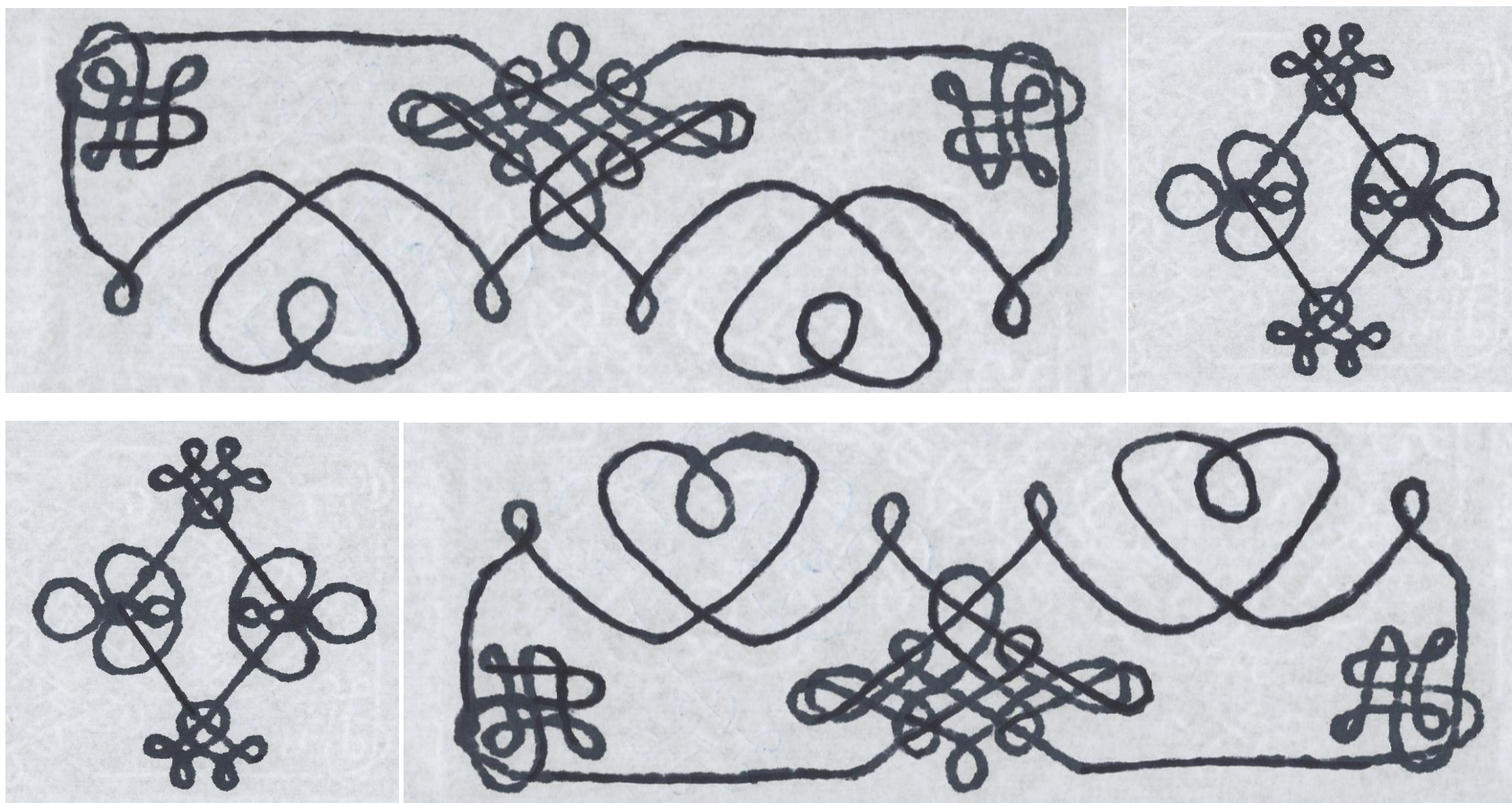


4. Thomas Aquinas and Pope Innocent III

However, the most provocative epistemological irony of this fresco lies in Raphael's puzzling motif drawn on the frontal face of the altar. This non-linear visual irony is a typical experiment that, as far as I know, only two Platonic Renaissance artists, Leonardo da Vinci and Raphael Sanzio, had introduced in their paintings in order to engage the spectator into participating in the creative process of artistic composition.

The puzzle challenges the spectator into discovering how to think three dimensionally on the surface of a two dimensional plane; that is, by following with his mind's eye the pathways of two of the four separate and closed pathways which are interwoven into an apparent single continuous motif. (Figure 5.) However, there is more than a mathematical trick to be considered in the action of developing such self-generating cycles of

development. This is the sort of exercise which I consider to be most helpful to discipline the mind for the purpose of discovering singularities inside of classical paintings. All four closed pathways are made up of 20 and 30 twists and turns, respectively, for a total of 100 in all and moving in all six directions at the same time. Just follow the baton of the conductor and you will hear the Lydian musical effect that they make in your mind; but, remember, if you don't have dissonance, you don't have harmony.



5. The two similar inversed pathways of 30 loops and two similar pathways of 20 loops.

Here, Raphael is provoking the spectator not only into mastering what is required for an artist of the Renaissance to think in terms of representation in three dimensions, but, also, what is required for resolving the most difficult and most important Platonic paradox of the Renaissance, which is to make the mind go from a lower manifold to a higher manifold; that is to say, by causing a rebirth of humanity in the minds of bestialized human beings after the darkness of the Middle Ages. The idea is to cause a paradigm shift to take place in the mind of the spectator by having him solve the Cusa paradox of the *coincidence of opposites*. As the spectator travels through the maze, he is able to discover three different but integrated directions of changes, as if this process reflected simultaneously the act of creating a galactic spiral action change coinciding with a non-visible representation of itself:

1. The spectator must find his way through a maze which constantly changes into six different directions, over and under, up and down, and side to side, to such an extent that he has to constantly look for the way to come back to where he started from in the past, at the same time that he must find which next triply-connected turn to make, into the future. His simultaneous forward and backward, left and right, up and down motion must be accomplished at the same time, as if in the simultaneity of eternity. In other words, the spectator must keep track of the space-time form of whence he came from as a means of discovering the change of where he is going to go next all at once and within the same momentum.
2. The spectator must discover where the next turn will be by remembering the opposite symmetry that his pathway has created. The discovery of the opposite pattern changing as a whole, will help him discover that the maze is a reflection or a mirror image of the problem solving process which underlies both frescos of *The School of Athens* and *The Dispute of the Holy Sacrament*, which face each other in the *coincidence between the truth of reason and the truth of faith*.
3. Finally, it is only by repeatedly going into six directions at the same time, under and over, up and down, and left and right in each and every turn of the knotwork that the spectator will be able to discover the

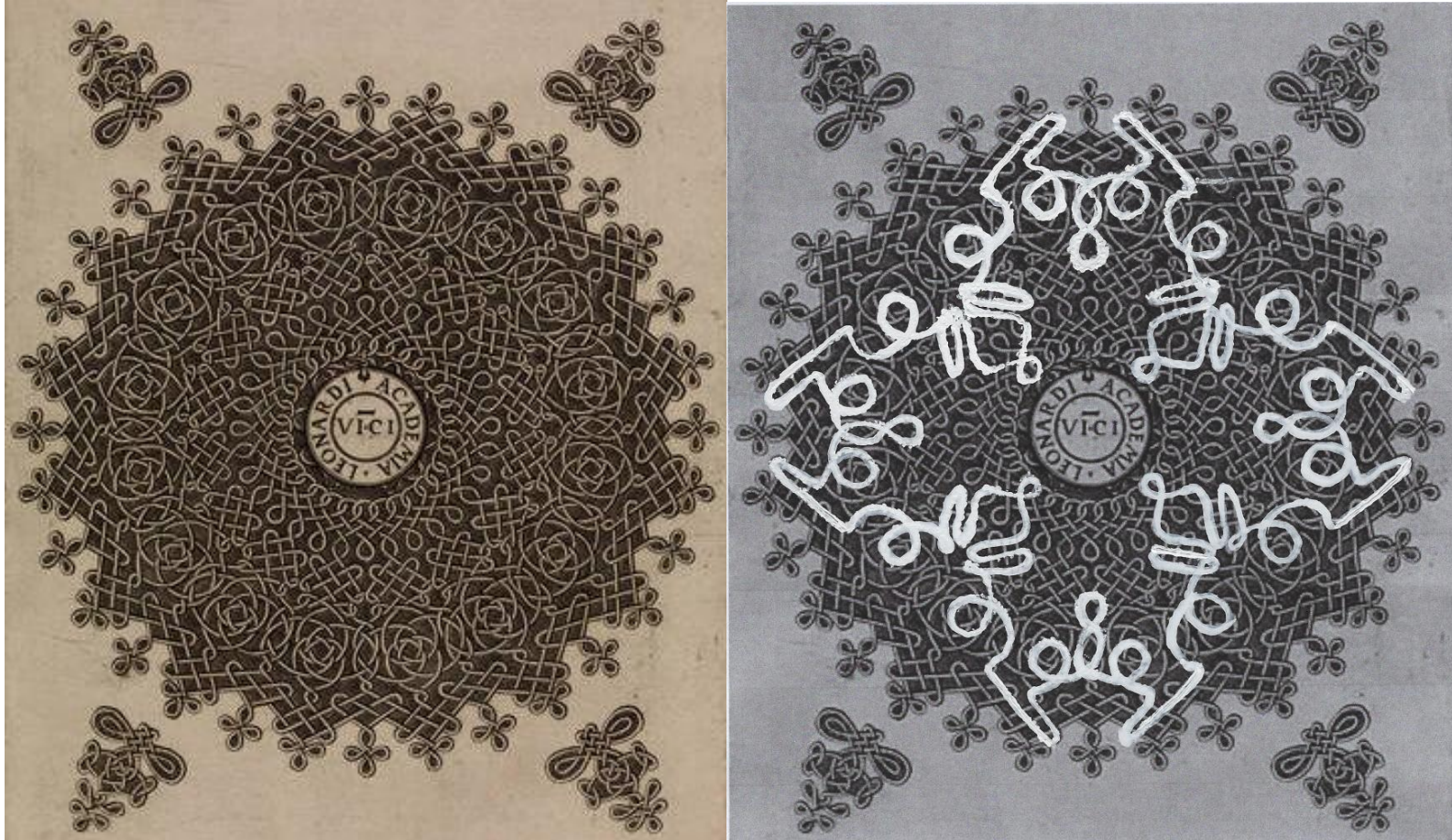
musical reason for the puzzle; that is, he will discover how to shape the future and change the past without fail as in the six right angle directions of the Lydian spiral divisions of the well-tempered musical system does, because he will have discovered how to execute the power of change with bel canto singing in his mind; otherwise, the excessive turning of his head will make him dizzy and topsy-turvy. It is not advisable to attempt this experiment after drinking, that is, after mass.

In the case of Leonardo, the system of links and knots is similar to Raphael's, because it is also based on the power of two (2, 4, 8, 16, 32). The irony is that Leonardo created an axiomatic change by going from a doubly-connected manifold to a triply-connected manifold, thus, causing the transformation of the design of the middle links to be added four times with the final result of generating two new designs that did not exist before. (Figure 6) What is the significance of such an anomaly?

Leonardo's axiomatic anomaly shows how to go beyond the boundary conditions of Cusa's paradox of squaring the circle, the so-called quadrature of the circle. (See Figure 6, middle links.) The circumscribing square is continuously interlocked with the inscribing square without any axiomatic-circular-boundary between the two. Thus, the paradox of squaring the circle is resolved by continuously going from inside to outside the non-visible circle. How does this jump from a lower to a higher manifold work?

Something quite exceptional and mysterious happens during the transformative construction of Leonardo's logo design (Figure 6). The logo design contains four different series of circular motives, yet there are only three interlocking motives generating them. The outer and inner rings are recognizable, but the construction of the middle links is not visible. What sort of anomaly is that? The middle links (shown in white in Figure 6) are included four times in the entire construction, spanning from the inner ring to the outer ring, and yet, they are not visible in the final product unless they are highlighted as I did. Thus, how can something that is reproduced four times for everyone to see not appear, even once, in front of your eyes?

Instead, what the spectator does see in the final product are an outer ring, an inner ring, and two middle rows of 16 roses and 16 interlaced squares (Figure 6 left), which have no similarity with the Leonardo middle links (Figure 6 right) that generated them. It is as if those two series of roses and interlaced squares had been created out of thin air. How can these two series be the product of four of the same invisible anomalous middle links?



6. Leonardi Vinci Academia, London Museum and the anomaly motif of the middle links

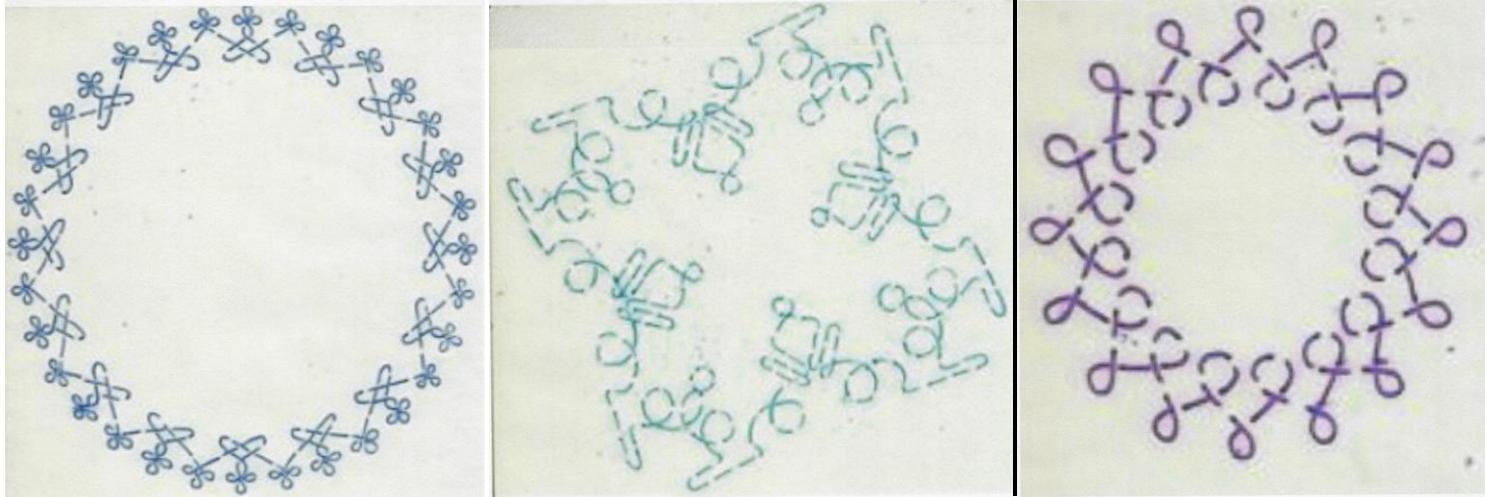


Figure 7. One outer ring: 32 links.

One of 4 middle links: 8 links.

One inner ring: 16 links.⁴

In order for the riddle of those middle links to become solved, the spectator has to follow their complex pathway of formation, from beginning to end; that is, *follow a pathway that is not visible but which is telling you something special*. This should be immensely puzzling and shocking to your mind, at the very least, and should raise the question as to why Leonardo would choose roses and interlaced squares to be created by something else, and why the middle links are meant to hold everything together by connecting the outer and inner rings. They are as links between two manifolds.

The reason is because the creative process cannot be seen. The creative mind of Leonardo is showing the spectator the conceptual pathway of the creative process; that is, the pathway whereby one discovers a higher manifold by first looking for what is not there; then, he is able to discover and construct it. That is the paradox of squaring the circle where the middle links show four inner links resembling inscribing frogs and four more outer

⁴ Jessica Hoy and Kenneth C. Millet, [A Mathematical Analysis of Knotting and Linking in Leonardo da Vinci's Cartelle of the Accademia Vinciana](#), Department of Mathematics, University of California, Santa Barbara, Ca., November 2014, p. 17.

circumscribing frog-like figures. What is not visible becomes understandable only by looking for something that the mind must discover as coming from the future. Thus, if you are patient enough, the future will appear to your mind in the present as the solution to a paradox. Once that paradox is solved, the anticipated future will come to exist in some other articulated manner, which will then become visible in the forms of roses and interlaced squares.

Similarly, the reason for Leonardo to choose the geometry of the power of two becomes obvious when one assumes that he chose that higher system of symmetry for musical and astronomical reasons; that is, because the octave power of the musical system is based on the galactic power of two and, from that vantage point, all cyclical motions of the planets in the Solar system can be made to conform with the yearly calendar cycle of 365 days, which can be gotten by multiplying by 4 and by 2 successively as $1+4+8+32+64+256 = 365$ twists and turns.

CONCLUSION

In conclusion, recall what Lyndon LaRouche said in 1997 about the nature of how a paradigm shift operates, and apply it to the present strategic and economic crisis:

“The world at large, which, curiously, includes the state of virtual reality known as the minds of the U.S. population, has entered a “boundary layer,” a kind of “transonic” region which separates the preceding 30 years from that entirely new order of things, for better, or for much worse, which lies beyond what we shall experience as the increasing turbulence within this boundary layer.

“From the evidence of expressed opinions among leading strata of the population around us, but also among our own ranks, there is virtually no evidence that the crucial political effects produced by this boundary layer, are recognized at all. That is: the processes which govern sudden, traumatically induced, “cultural paradigm shifts. Summarily, therefore:

“Given: a large array of possible choices among sets of axiomatic principles of belief (e.g., such as the dimensions of a Riemannian form of n-dimensional manifold), the way in which the emotions controlling the

individual's mind select some of those principles, and avoid others, will determine the way in which opinions and actions are selected by that individual mind.

“Thus, a sufficiently powerful trauma, such as the manifest collapse of the international monetary-financial system, is capable of inducing extremely radical transformations in the set of axiomatic assumptions underlying the formation of individual belief. This could be produced as a by-product of the suppression of some axioms and the activation of others which had been, so to say, “slumbering.” It is also the case, that, under such circumstances, a new axiom (e.g., transforming the manifold of axioms available from n to $n+1$) may be introduced.

“Generally, the way in which the selection from the $n+1$ array will be formed, will be based upon the relative optimism, or pessimism prevailing. The factor of optimism is aroused by confidence in the new belief-system as either the basis for generating useful theorems of belief for action, or a conditional confidence, conditional upon some available leadership for formulating and directing appropriate forms of action.

“For me, it is a warning-sign of looming disaster, wherever I see the appreciation of such emotional considerations put to one side, in favor of a mechanistic reliance upon existing trends in opinion. Without addressing ourselves to the sudden disposition for extremely radical changes in axiomatics underlying the opinion of populations, anything said about strategy and tactics for this period, by us, respecting our own actions, or any influential other institution respecting its own, would be thoroughly incompetent, even for that reason alone.”⁵

FIN

⁵ Lyndon LaRouche, [*The 'Pearl Harbor Effect,' Or How Paradigm Shifts Operate*](#), EIR, Originally published in EIR on August 19, 1997, EIR, October 2, 2020, p. 2-3.