
FUXI, LEIBNIZ, BACH, AND LAROUCHE ON THE PRINCIPLE OF RECIPROCITY

On the Discovery of Principle of Lyndon LaRouche's Four Power Solution

Pierre Beaudry, 12/16/2019

FOREWORD

“People have the simplistic conception of the sound of the voice as such, and things like that, as the principle of human behavior; that is not true. The characteristic is, and the music is, that the music itself, the musical voice as such is the standard. Not the decorations, not the noises, not anything else. It's the placement of the voice, and the placement of the voice is not something that you generate physically. It's not that way. What it is, is the character of the mind.”

Lyndon LaRouche, [*To Save Civilization, Place Your Voice!*](#)

A Chinese discovery made 4,600 years ago is today applied as the basis for the digital computer system and yet hardly anyone knows about it. How can such a genuine revolutionary idea have remained hidden from so many people and for so many years?

Three hundred years ago, the rediscovery by German philosopher and world citizen, Gottfried Leibniz, of that ancient Chinese principle was, in point of fact, the unacknowledged key to solving the conflict between East and West and for establishing a worldwide paradigmatic change based on the coincidence of opposites by bringing together the New Bretton Woods policy of Lyndon LaRouche and the win-win policy of Xi Jinping. This Leibniz discovery of principle was then, and is today, what should have been the strategic game-changer

for the world as a whole for the last 300 years. Today, the last chance has come to successfully apply such a principle to the changing world strategic situation.

INTRODUCTION

Respect for the sovereign discovery of principles of an ancient people is a most vital action to promote in every country of the world at any time, and most importantly today, because such an action of rediscovery is not merely the retrieval of a rare historical gem in its own right, but is also the most significant missing piece of concordance and reciprocity that is required for restoring a permanent Peace of Westphalia in the world today. Today, this translates into the necessity of applying LaRouche's idea of how to promote the right of individuals and of nations to be sovereign through such a discovery of principle.

Why is such a discovery necessary for today? Helga Zepp-LaRouche gave the answer to that question when she referred to Nicholas of Cusa's discovery of principle, which is the "method of defining what is the necessary next invention..." Then, she added: "Now, obviously, Nicholas of Cusa could not know the specifics of it, but the method of defining the necessary next discovery by," he basically said, "each individual, recapitulates the entire evolution of the universe up to that point, and from that standpoint, you can then determine what is the necessary next step."¹

So, as Helga put it, the next step for mankind to take is to rediscover Nicholas of Cusa's way of solving the paradox of the *coincidence of opposites* from the vantage point of LaRouche's scientific method. As she said: "So this concept of the *coincidentia oppositorum*, the coincidence of opposites, this is very close to the Chinese thinking of establishing, or trying to develop a harmony among people, among individuals, among nations, and it is what Xi Jinping calls the "shared community of the joint future of mankind."²

¹ Helga Zepp-LaRouche, *The Morning Briefing for Sunday, October 6, 2019*.

² Ibidem.

THE QUESTION OF MEMORY AND MUSIC

“If you keep watching your back, you’ll never see what’s coming: let the future determine your past.”

Dehors Debonneheure

In his book, *Matter and Memory*, Henri Bergson attempted to discover the crucial unity that binds mind to matter, but was not able to solve the pitfalls and paradoxes of psycho-physical parallelism that are involved. In his dualistic attempt, Bergson identified two different sorts of memory; one is passive, keeps watching the past, and is unconsciously receptive of the future at every moment of your life; the other is active, keeps looking ahead at what is coming, and is willfully effective by means of repetitive action. The measuring rod between the two is not the stick of short term memory but the arc of the long term repeating cycles of physical space-time coming from the future, going back to the past, and moving forward again, to the present.³

Although these two ideas of memory are axiomatically different, you don’t have, in reality, two different memories. Bergson was unable to solve this paradox because he was unable to discover that these two mnemonic orientations belonged to the same memorizing process which relates to physical space-time in two different and opposite ways; one is an existential imaging function of personal past events that you recall for the purpose of enjoying them in the clock-time present; the other, is a repetitive function of a past memory whose purpose is to shape and change the present by time-reversal for the purpose of improving the future. One orientation remembers or forgets the day to day events of *clock-time*; the other learns and repeats the crucial lessons of past human history to be retained for the improvement of mankind in the *simultaneity of eternity*.

In all cases, it is a fallacy of composition to believe that memory is a storage area of your mind, some sort of container in which you pick and chose. Memory is a choice that the human will of the *world historical personality* makes, by time-

³ See Henri Bergson, [*Matter and Memory*](#), Humanities Press, Inc., New York, 1970.

reversal, and which causes the living historical memory of mankind to provide for the cyclical return of changing ideas of the past, by restoring them back to what they should have become instead of what they ended up to be. For example, Leibniz's restoration of Fuxi's millennial discovery of the binary system is such a time-reversal memory function. So, in that sense, memories of mankind can be revived and changed; in spite of the fact that the events of their original timely occurrences cannot be modified and may have been forgotten for thousands of years.

The aspect of the memory function I want to discuss, here, is not the one that is passive and boringly indifferent to the passing of the days of your life; it is the one which is actively curious and searching for what is not there, which repeats in order to restore what is missing, and which changes what history did to that memory for the benefit of mankind through the discovery of new principles. In that sense, memory is a cyclical fountain that keeps on recycling the flow of ideas coming from the future, which rejuvenates the waters of the past through the discovery of new principles before new memories are moved back to the future, again, as if across an ocean without a shoreline. Let me give you an illustration of how this memory process works with respect to principles.

Imagine the coming together of four different principles of the past which act on each other as four powers working with reciprocity for the benefit of mankind, like the four powers of LaRouche's New Bretton Woods policy which presently can bring together China, Russia, India, and the United States into a common policy of development.⁴

What happens under such circumstances is not merely the breakdown of liberalism and imperialism, but the discovery, for the first time throughout the world, that axiom busting is a fundamental characteristic of mankind. Here is how you can discover that. Apply your voice to the common purpose of the four major powers on this Planet as if the memory modular function were to work like the following biquadratic residue of 4 mod 17.

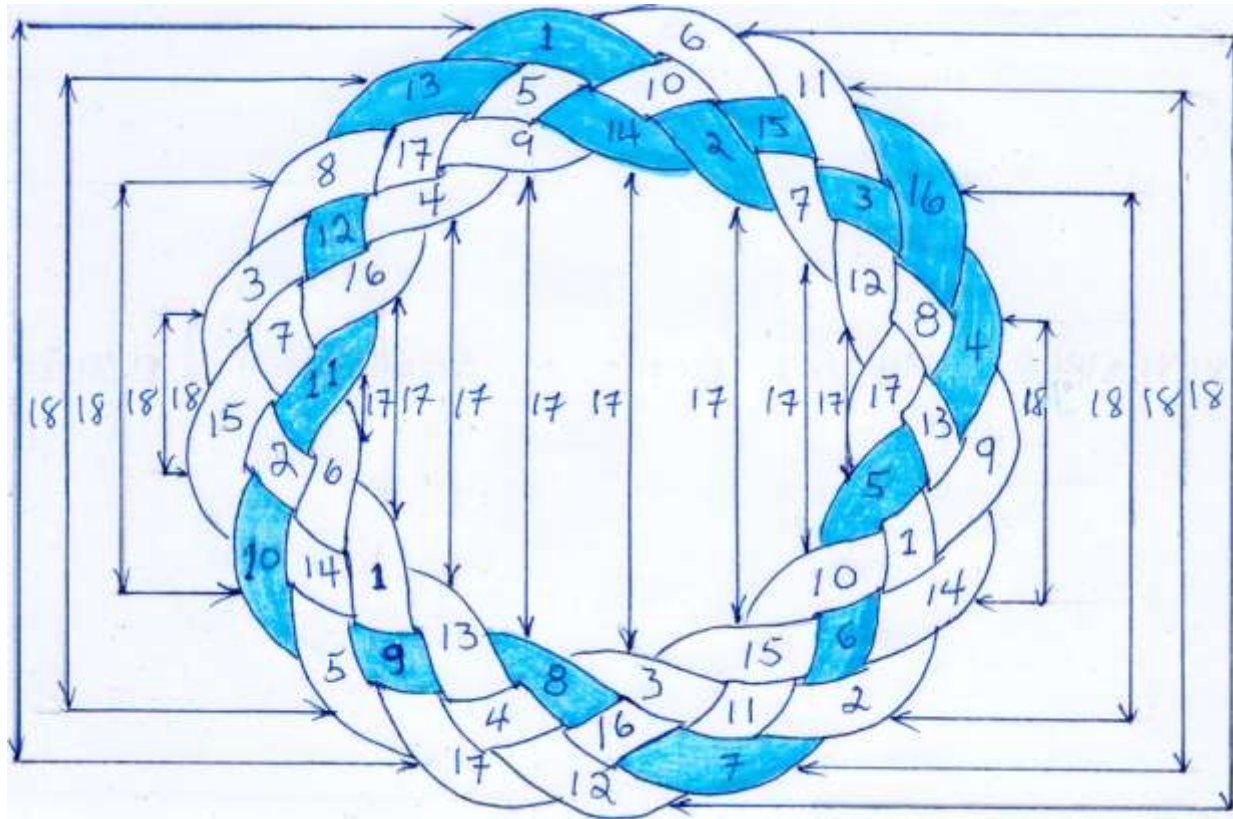
⁴ The New Bretton Woods requires LaRouche's Four Laws. See [The Four New Laws to Save the U. S. A., Now! NOT AN OPTION: AN IMMEDIATE NECESSITY](#). LPAC.

Don't focus on the numbers, you will get lost; focus on the discovery of principle. Construct the biquadratic function like a memory modular cycle and add inside of all of its intervals of action (empty spaces) 3 repeated series of 17 spiraling discoveries which you have made at different times in your life and which are ordered by four higher principles numbered 1, 4, 16, and 13. The detail content of those four discoveries do not matter; they will operate without your knowledge of them in any case, because they are truthful. They will operate together as "*Vincit Omnia Veritas.*"

In the case I wish to present to you, the four principles are the following: The first (1) is the repetitive application of the musical Lydian spirals originally discovered by J. S. Bach. The second (4) is the rediscovery of how to increase energy-flux-density as identified by Lyndon LaRouche. The third (16) is the rediscovery of the underlying circular geometry of whole numbers made by Poinot and Gauss, in the spirit of Beltrami's geometrical negative curvature. And the fourth (13) is the rediscovery of the Geometry of the Binary function discovered by Fuxi and Leibniz in accordance with Cusa's method of *coincidence of opposites*.

With the help of those four principles, find the appropriate geometrical placement of 4 as a biquadratic residue of 17.⁵ (See Illustration) *Starting at (1) and moving in an ascending motion clockwise, if you increase the value of the poloidal action (4) by any power whatsoever with respect to the toroidal action (17), the multiple poloidal wave unity of action of 4 will continuously increase and connect together by least action all four biquadratic residues of 17; that is, starting from 1 to 4, 4 to 16, 16 to 13, and 13 back to 1. All empty spaces will be covered in accordance with a definite set of quadratic rules.*

⁵ This Leibniz analysis situs exercise is in the spirit of Gauss's theory of biquadratic residues. See Carl Friedrich Gauss, *Disquisitiones Arithmeticae*, Yale University Press, New Haven, 1966.



The geometrical condition for biquadratic residue reciprocity. Memory-function of a modular wave in the P/T ratio of $4/17$ ($4 \pmod{17}$).

Thus, it does not matter how many powers you use in order to orbit around the torus, your placement (the ordering of physical space-time) will always be secured under those four quadratic principles; and those four primary principles will always secure your other secondary discoveries inside the monad of your mind. As Leibniz established in his analysis situs game, “all of the spaces on a board are to be filled according to definite rules.”⁶ The question is: What is the ordering principle of those rules?

⁶ Gottfried Wilhelm Leibniz, *Philosophical Papers and Letters*, Ed. Leroy E. Loemker, Kluwer Academic Publishers, Boston, 1989, p.487.



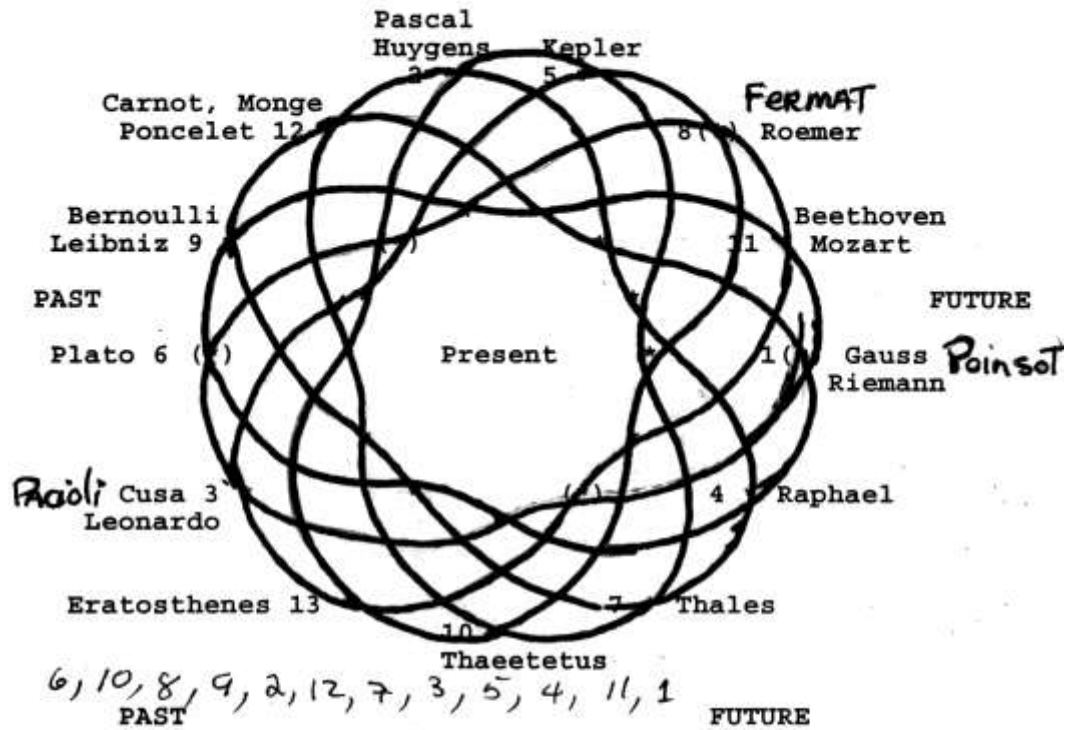
The ordering of the above wave function is based on what is known in number theory as the $4 \bmod 17$ reciprocity. In other words, when you start rotating the Poloidal waves by 4 units of action at a time, clockwise, around a torus of 17 waves, (starting at 1), the wave series of 4, 16, 13, and 1 demonstrates the geometrical property of whole numbers in accordance with the Fuxi and Leibniz creative principle of binary numbers in accordance with Cusa's *coincidence of opposites*. That is how the principle of reciprocity works with whole numbers. Note that the parallel vertical reciprocity is 17 on the inside the torus and 18 on the outside.

To illustrate this process in a different manner, the following memory modular wave function of $6 \bmod 13$ is a twenty year old construction I made some years ago. The order of things has changed tremendously since then, but the underlying mental-space-time of their ordering is still the same:

Fuxi (伏羲). An ancient painting of Fuxi (right) and Nüwa (left) unearthed in the Astana Cemetery, Xinjiang. Wikipedia

ANALYSIS SITUS OF THE HIGHER HYPOTHESIS

How to go from a Euclidian manifold
to a Riemannian manifold?



- | | |
|---|---|
| [6] Plato
[Ontological paradox] | [1] Gauss, Riemann
[Biquadratic residues] |
| [3] Cusa, Leonardo
[Isomerimetric Theorem] | [11] Mozart, Beethoven
[Lydian modality] |
| [13] Eratosthenes
[curvature of Earth] | [8] Roemer <i>FERMAT</i>
[speed of light] |
| [10] Thaeetetus
[Five Platonic solids] | [5] Kepler
[harmonic field] |
| [7] Thales
[Thales theorem] | [2] Pascal, Huygens
[conics, isochronicity] |
| [4] Raphael
[School of Athens] | [12] Carnot, Monge, Poncelet
[projective geometry] |
| [1] Gauss, Riemann
[Biquadratic residues] | [9] Leibniz, Bernoulli
[Brachistochrone curvature] |

See my video on the principle of this construction: [Time Reversal Lecture Pierre Beaudry 1996](#)

THE LEAST ACTION PRINCIPLE

“He who deals with only a limited field rarely discovers anything new, since he soon exhausts his subject. But from those who investigate many different things and are gifted with a combinatorial genius, we may expect many new and useful interconnections of things.”

Leibniz, *On the Elements of Natural Science*.⁷

The ancient Chinese way of counting numbers embodies the least action principle and the resolution of the paradox of the *coincidence of opposites* by multiply-connected circular action. In other words, space is not something, some empty container floating around, it is not an empty void; it is the ordering of things, it is how things are put together, and time is the remembering of that ordering action. In a short paper called *ON THE RADICAL ORGANIZATION OF THINGS*, Leibniz reestablished such a principle of *space-time as ordered memory* in the manner of least action. He spoke about space-time as a constructive geometrical form of *analysis situs*:

“There is always a principle of determination in nature which must be sought by *maxima* and *minima*; namely that a maximum effect should be achieved with a minimum outlay, so to speak. [...] The case is like that of certain games in which all of the spaces on a board are to be filled according to definite rules, but unless we use a certain device, we find ourselves at the end blocked from the difficult spaces and compelled to leave more spaces vacant than we needed or wished to. Yet there is a definite rule by which a maximum number of spaces can be filled in the easiest way. [...] And assuming that there is to be motion from one point to another without anything more determining the route, that path will be chosen which is easiest or shortest. Similarly, once having assumed that being involves more perfection than nonbeing, or that there is a reason why something should

⁷ Gottfried Wilhelm Leibniz, *Philosophical Papers and Letters*, Ed. Leroy E. Loemker, Kluwer Academic Publishers, Boston, 1989, p. 281.

come to exist rather than nothing, or that a transition from possibility to actuality must take place, it follows that even if there is no further determining principle, there does exist the greatest amount possible in proportion to the given capacity of time and space (or the possible order of existence), in much the same way as tiles are laid so that as many as possible are contained in a given space.”⁸

Thus, as Leibniz said, God created the “best of all possible worlds”; because He used the least effort to produce the greatest and most diversified number of creatures. The irony, here, is that the physical space-time universe that God created is not perfect and all of the space-time combinations are ordered in such a way that man is required to figure out the process of their *continuous change*. Therefore, if he follows in God’s footsteps, a human being has the creative power, as much as he can, to fill all of the spaces which are required to be filled during his own lifetime and pass this on to the future generations.

However, the crucial paradox to be solved is how to deal with the contradiction of *continuous change*? If something changes, it is not continuous; and if something is continuous, it does not change. How do you deal with such an impossible situation?

In promoting his principle of change, Leibniz was trying to break with the lock-jam of Aristotelian, Kantian, Newtonian, and Cartesian thinking. He was attempting to replace the backward principle of oligarchical tradition with a Platonic least action principle that could be made accessible to all people. This is where his *principle of harmony between reason and power* comes into play as the most important social *principle of least action*; that is, as the founding principle of Academies of Arts and Science which he wanted to establish around the world and most emphatically in China. I remind the reader again how this Leibnizian principle of harmony between reason and power works:

"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,

⁸ Ibidem, p. 487. Also see Cusa’s *Posse Ipsum*.

and the merits and even the form of the Republic, that each may understand what he is capable, and capable 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."⁹

RECIPROCITY: THE DISCOVERY OF PRINCIPLE OF FUXI AND OF LEIBNIZ

What is important to grasp in this process of transformation is the principle of creativity as Leibniz applied it in: [*DISCOURS SUR LA THEOLOGIE NATURELLE DES CHINOIS*](#). This is where to locate the missing link that LaRouche identified as the link among the three domains of scientific discovery to come: fusion processes, electromagnetic pulse, and optical biophysics.

Leibniz emphasized the combinatory, periodical, and reciprocal ordering of the two elementary characters 0 and 1 by the founder of Chinese culture and philosophy, Fuxi, who expressed that connectivity through the *coincidence of opposites*.

⁹ Gottfried Leibniz, [*On the Establishment of a Society in Germany For the Promotion of the Arts and Sciences*](#), The Schiller Institute. See also: *The Political Economy of the American Revolution*, EIR, 1995, p. 215-16. I also recommend the useful article by Ayval Ramati, [*Harmony at a Distance*](#), Isis, Vol. 87 No. 3, Sept. 1996, pp. 430-452. Ramati's article shows how Leibniz attempted to implement reforms in the domains of "education, printing, economic projects, standardization of measurement, and classification of archives. [...] The mission of the scientific institution, which would –Leibniz envisioned – elect him as its head administrator, included science, history, art, trade, commerce, police services, medicine, the establishment of numerous archives, education, the development of machines, book censorship, publication of journals, establishment of a center to report and gather useful inventions, and more." (p. 437.) See also, Lyndon LaRouche, [*The Power of Reason, A Kind of an Autobiography*](#), The New Benjamin Franklin House, Publishing House, Inc., New York, 1979.

In fact, this elementary Chinese characteristic was actually a modular memory function that had been used in ancient times to configure the periodical seven days of the week in accordance with the seven visible planets. The ordering had been used by the three great civilizations of ancient times, the Chinese, the Indian¹⁰, and the Egyptian.

However, this memory function of ancient Chinese civilization is generally mystified and disguised under the eight astrological trigrams of Fuxi, because they have lost their geometrical and epistemological values during the course of history to the point of becoming unrecognizable and almost meaningless today. The Chinese Shadows no longer projected what they were meant to project. Leibniz made the crucial point on this matter:

“It is indeed apparent that if our Europeans were sufficiently well informed of Chinese literature, then, with the assistance of logic, of critical thinking, mathematics, and of our manner of expressing ourselves, which is better defined than their own, we could uncover in Chinese writings of very ancient times, many things unknown to modern Chinese and even to the classical scholars of the past, no matter how classically trained they may have been. This is how Father Joachim Bouvet and I have discovered the most obvious truthful meaning about the literal significance of the characters invented by the ancient founder of the Chinese empire, Fohi (Fuxi), which consists merely of combinations of broken and unbroken lines, and which are considered the most ancient writing of China, and their simplest ones.

“There are sixty four (64) figures included in the book known as *I Ching*; that is to say, *The Book of Changes*. Several centuries after Fohi (Fuxi), Emperor Ven Vam and his son, Cheu Cum, and more than five hundred years later the famous Confucius, have all attempted to find in them some philosophical mysteries. Others have even attempted to extract from them some geomancy and other similar vain concoctions. In reality, the 64 hexagrams are nothing but an exercise in binary arithmetic, which this great

¹⁰ See my report : [NEWS-FROM-ANCIENT-INDIA](#)

legislator (Fuxi) discovered, and which I have also discovered several thousand years later.

“In that arithmetic, there are only two notes, 0 and 1, from which all the numbers can be generated; and when I told Father Bouvet about it, he immediately realized that they corresponded precisely to the Fuxi characters. By making the broken line - - correspond to 0 or zero, and the unbroken line — correspond to unity or 1, this arithmetic gives you the simplest way to produce variations, since you only have two variables.

“This is how Fohi (Fuxi) was inspired to discover the science of combinations on the subject of which I wrote a short dissertation in my youth, and which was later reprinted without my consent. However, since this arithmetic had been completely lost, the later Chinese generations did not pay any attention to the knowledge they had lost. And, they transformed the Fohi (Fuxi) characters into God knows what symbols and hieroglyphics, which became meaningless, like what Father Kircher said about the writings of the Egyptian obelisks that he had no understanding of. And, this goes to show that the ancient Chinese have by far exceeded the modern Chinese, not only in piety (which leads to the most perfect morality) but also in science.”¹¹

These numbers are not just numbers or just combinations; they are a performative expression of the creative process of change itself; they reflect a principle of transformation which requires the practical use of their application in order to be understood; they are a performative form of mental exercise which does what it says it does, at the same time that it causes the change that generates them. Here is how Leibniz describes this self-reflective “natural theology” as an analogue to the Christian view of Creation:

“And thus, as far as I understand, I think the substance of the ancient theology of the Chinese is intact and, purged of additional errors, can be harnessed to the great truths of the Christian religion. Fohi (Fuxi), the most ancient prince and philosopher of the Chinese, had understood the origin of

¹¹ Gottfried Leibniz, [Discours sur la Théologie Naturelle des Chinois](#), Wikisource. (Translation by P. B.)

things from unity and nothing, i.e., his mysterious figures reveal something of an analogy to Creation, containing the binary arithmetic (and yet hinting at greater things) that I rediscovered after so many thousands of years, where all numbers are written by only two notations, 0 and 1.”¹²

	0	1	10	100	1000	10000	etc.
signify	0	1	2	4	8	16	etc.

The numbers are expressed as follows:

		Figures of Fohi	
0	0	0	0
1	1	1	1
10	2	00	0
11	3	01	1
100	4	10	10
101	5	11	11
110	6	000	0
111	7	001	1
1000	8	010	10
1001	9	011	11
1010	10	100	100
1011	11	101	101
1100	12	110	110
1101	13	111	111
1110	14		
1111	15		
10000	16		
etc.	etc.		

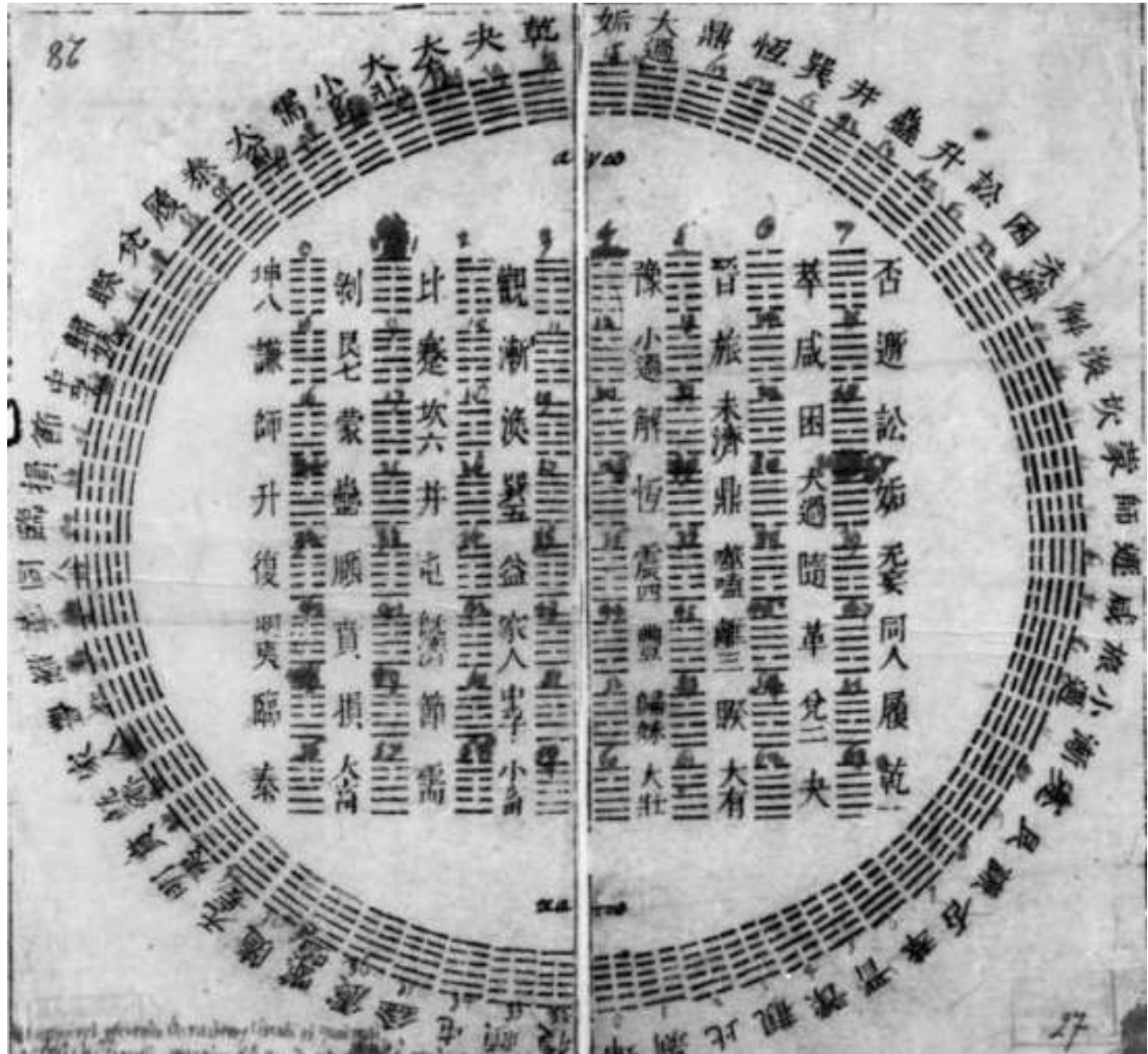
These tables are reproduced precisely as Leibniz wrote them. Note the underlying power of two.

What does that tell you about growth; about doubling the square, doubling the cube, and doubling cycles?

Study the above trigrams attentively and patiently and you will discover the combinational ordering behind the musical system of tuning at C-256 that Lyndon LaRouche has been advocating the restoration of for classical musical composition.

¹² Gottfried Wilhelm Leibniz, *Writings on China*, Open Court, Chicago and Lasalle, Illinois, 1994, p. 73.

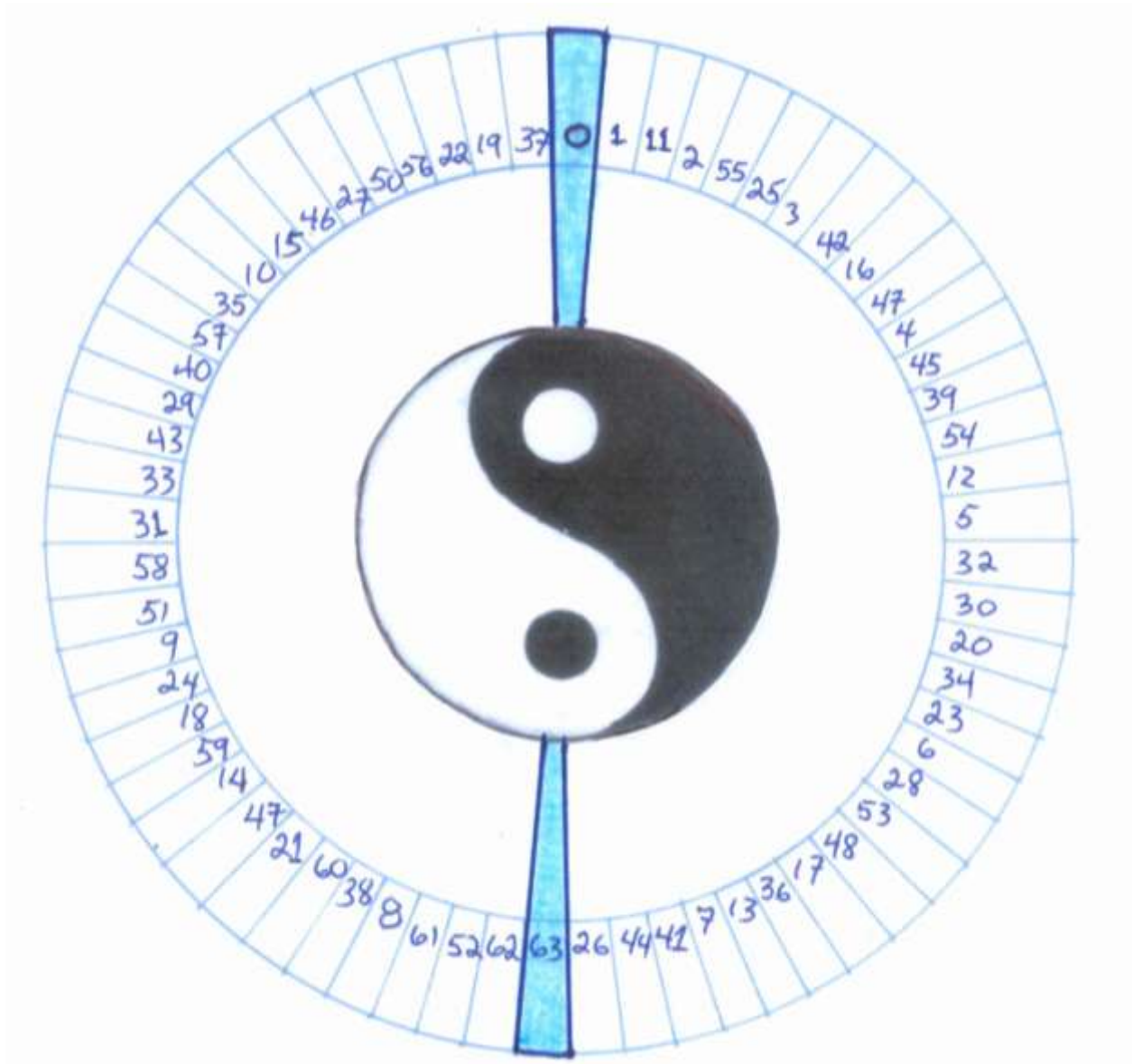
This cycling ordering also represents the power of doubling in living processes, as well as the underlying geometrical principle behind the Poincaré-Gauss construction of whole numbers in the complex domain.



Original copy of the 64 *I Ching* hexagrams (from 0 to 63) sent to Leibniz by Father Bouvet. The hand written numbers are from the pen of Leibniz.

How Leibniz discover the solution to this Chinese puzzle is not known. It is not reported if Leibniz knew about the circular action characteristic of the Fuxi trigrams; however, he did identify the two *opposite features* of the broken and

unbroken lines in the *I Ching* hexagrams. But, how did he relate this opposition to numbers and not to some other language code?



Variation on the 64 *I Ching* hexagrams of Fuxi. Discover the rule of the ordering.

First, Leibniz saw that each character was made up of a series of only two opposite broken and unbroken lines; and that no two trigrams or hexagrams were the same. Secondly, he discovered that the 64 hexagrams were ordered in 32 pairs, whose characters were all the inverse of each other when viewed from across the

diameter of the circle. Thirdly, he realized that only numbers could be ordered in such a circular fashion, because only numbers reflected such cyclical change and expressed the power to grow.

From this hypothesis of change and growth, Leibniz understood that the positions of the hexagrams were ordered in a continuously changing cyclical series which started from the six broken line hexagram at the bottom right half of the circle; and then, the said hexagrams rotated counterclockwise up to the top to the opposite hexagram across the diameter; that is, the hexagram with six unbroken lines. Now, pause for a minute, here, and ask yourself: "What does that tell you?"

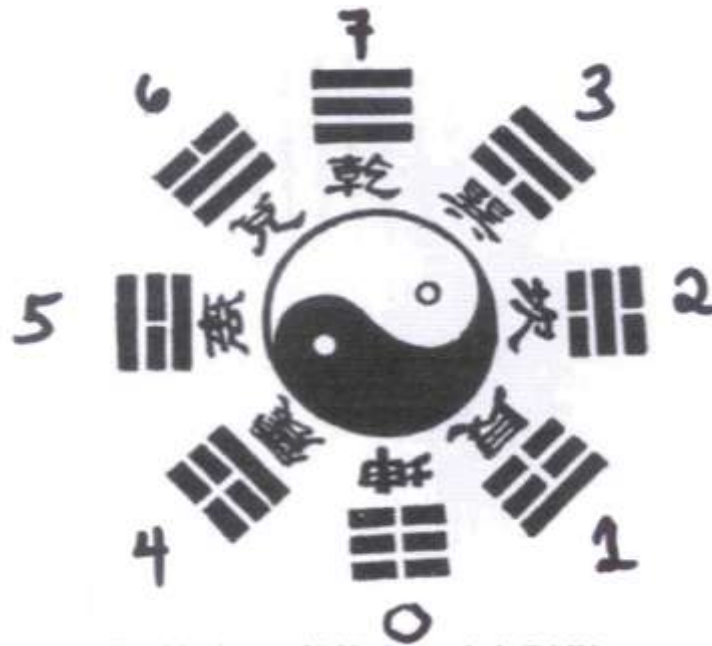
It tells you that all 32 pairs of hexagrams crisscrossing the circle are in opposition to each other, two by two, at the same time that they are all in complete congruence and complementarity with each other, like the Father and the Son in the Holy Trinity. Fuxi discovered that the diameter (Holy Spirit) was the *unity of opposites*.¹³ How can you have such oppositions and unity at the same time? This can happen only when the pairs of hexagrams have reciprocity. This is when you discover that the characters are numbers, because each of the 32 pairs adds up to a total of sixty three (63). Thus, reciprocity between all of the hexagrams must be the One of all of the Many opposites; and that is the principle that had to be discovered.

The *coincidence of opposites* is expressed by the rotating action of the diameter, which establishes a non-linear congruence and *reciprocity of opposites* around the circle like the Holy Spirit expresses the unity between the Father and the Son (*Filioque*) in the Christian religion. Thus, Leibniz understood that what Fuxi had discovered was the natural theology (epistemology) of what the Christians in the West called the *Filioque*. As a result, Leibniz realized that such an *analysis situs* cyclical and non-linear geometry of change by reciprocity was a memory function which could restore, by time reversal, the unity of reason and power of mankind, between the East and the West; that is, unify reason and faith for all of mankind and for all times to come.

¹³ The Kepler sphere has the same characteristics.

Similarly, note that the reciprocity across the Fuxi trigrams is everywhere seven (7) and that the trigram reciprocals are all the inverse of each other. This is how Leibniz saw the connection between the creative process of the human mind and the Holy Trinity:

“What Longobardi himself reports of the *Taikie*, the *Li*, – and the primitive ether or spirit, which at least corresponds somewhat to the Trinity of the Christians or of the Platonists – supports this. The *Taikie* is the power or the first principle; the *Li* is the wisdom which contains the ideas or essences of things; the primitive Ether is the will or desire – what we call spirit – from which activity and creation is effected.”¹⁴



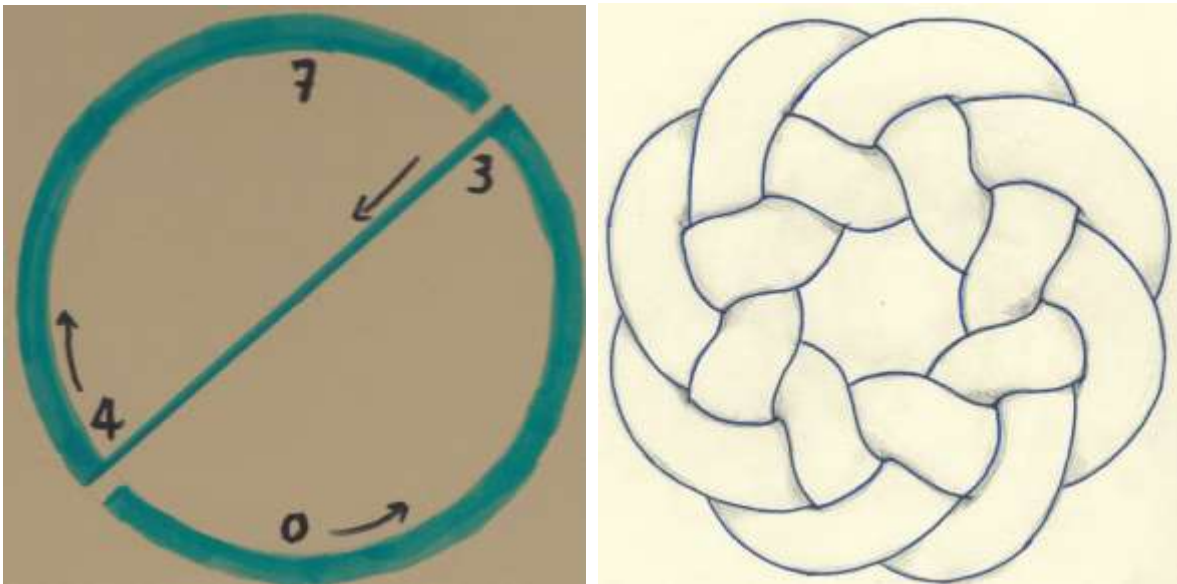
Fuxi's Eight Trigrams. Note how the reciprocity of all the numbers across the circle is everywhere 7 and how the trigrams are everywhere the inverse of each other's opposite.

Furthermore, Leibniz had this important insight with respect to Nicholas of Cusa: “The Chinese also call their *Li* a globe or circle. I believe that this agrees with our way of speaking, since we speak of God as being a sphere or a circle

¹⁴ Gottfried Wilhelm Leibniz, *Writings on China*, Open Court, Chicago and Lasalle, Illinois, 1994, p. 72.

whose center is everywhere and whose circumference is nowhere.”¹⁵ This idea, taken from Cusa, is given a complementary dual dynamic which the Chinese generally represent by the Yin-Yang symbol of Tai Chi, or tai-ji, as Leibniz called it.

The Tai Chi symbol of Yin-Yang (light-dark) should not be taken literally as an expression of antagonistic opposites, but rather as a principle of *unity of opposites*, such as the ordering of chirality everywhere in living nature, where each opposite is included into the other as the inverse of itself and where the *reciprocity of opposites* keeps growing by doubling itself.



Discovering the geometrical ordering principle: The circular principle of Fuxi's Eight Trigrams doubling itself into a Biquadratic Octagon: Find the eight reciprocal pairs of numbers across the torus, which all add up to 15.

Then, Leibniz added this paragraph on the relationship of Li and God, which was later struck out from his published text. He wrote: “After all this, why not simply say that the Li is our God? That is, the ultimate, or if you wish, the primary ground of Existence and even of the possibility of things; the source of all good which is in things, the primary intelligence which was called by Anaxagoras and

¹⁵ *Writings on China*, p. 82.

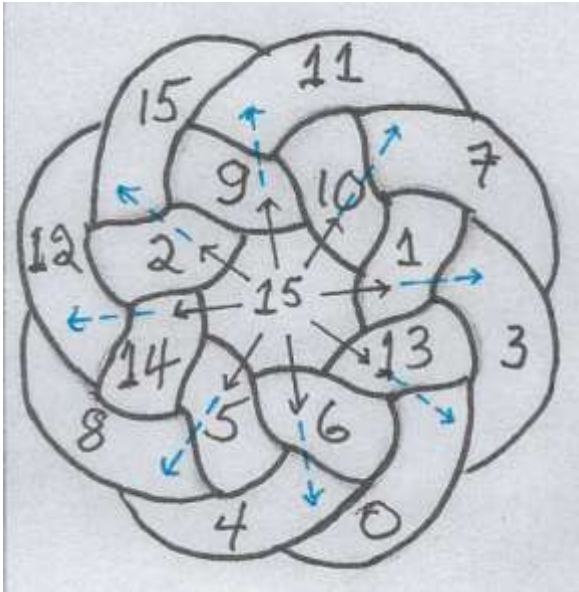
other ancient Greeks and Latin, *Nous, Mens?*”¹⁶ This text should obviously not have been taken out of publication because it reflects perfectly the *principle of agapic reciprocity*. For Leibniz, this *principle of reciprocity* is also the rule which precludes the formation of monopolies in economics and establishes the harmony between *reason and power*:

“Monopoly is avoided, since this Society always desires to give commodities at their fair price, or even more cheaply in many cases, by causing manufactured goods to be produced locally rather than having them imported. It will especially preclude the formation of any monopoly of merchants or a cartel of artisans, along with any excessive accumulation of wealth by the merchants or excessive poverty of the artisans-which is particularly the case in Holland, where the majority of merchants are riding high, whereas the artisans are kept in continual poverty and toil.”¹⁷

I must emphasize, here, the importance of this trigram circular action because such a *Filioque triply-connected function* is not only fundamental for understanding the creative process of Fuxi's construction, but also to establish, centuries later, what became the most important social Chinese practice known as Tai Chi, whose movements systematically involve the same *reciprocity of opposites* and community of principle.

¹⁶ Ibid, p. 80.

¹⁷ [“Leibniz's first writing on 'Society and Economy.'”](#) EIR, Vol. 18 No. 1, January 4, 1991, p. 12.



The eight pairs of reciprocals are all equal to fifteen (15)

This *Filioque Function* is the *coincidence in the reciprocity of opposites* which has been revived in China only recently as the fundamental principle of society by means of which the win-win policy of Xi Jinping has been made available as a practice of the creative process by the entire Chinese population succeeding in lifting 840 million people out of abject poverty. *This is the reason why the combinatory, periodical, and reciprocal modular principle of circular action is truly the crux of the Fuxi and Leibniz discovery: the principle of change in the realization of the Common Good and the elimination of economic poverty.*

If you fill in the blanks of the above Biquadratic, in such a way that you increase the speed with each unit of action as if you were travelling in a spaceship to Mars, you will be able to fill in all of the empty intervals with as many future numbers as you wish, and the said numbers will, everywhere, be reciprocals. Such reciprocity is the unity of multiplicity you are looking for; that is, the One of the Many of Plato that Leibniz had rediscovered in the Creative Process of Fuxi. J. S. Bach used a similar principle for the composition of his Chromatic Fantasy, a few years before developing his Well-Tempered Clavier.¹⁸

¹⁸ Fred Haight reminded me recently in a private correspondence that J. S. Bach had composed his Chromatic Fantasy on a similar principle using the three Lydian spirals to generate all of the twelve key changes: “The Fantasy

Here, the increasing progression can generate an infinite series of numbers, but, unlike the decimal progression, it cannot generate fractions, only residues. The fact that the modulation can be so easily numerated and be written in such a recurring periodicity suggests that its progression, based on a least action form of circular action, is a superior form of arithmetic, which is exclusively based on the power of two; that is, on the power behind the C-256 musical system. It is as if the residue modality corresponded to the Lydian modality resolution as in Bel Canto singing. The biquadratic notations of Bach's *First Prelude in C-major* expresses this process quite adequately, as I shall demonstrate below.

However, the danger, here, is to fall into the illusion that the human mind could be replaced by some binary brain fantasy, as the fanatics of artificial intelligence would have you believe. As Lyn once said, and many times demonstrated: “*The cleverest way, psychologically, in which to hide a secret is to divert the investigator down a tiring trail toward a false discovery.*”¹

THE PLACEMENT OF THE VOICE REGISTER SHIFTS AND THE LYDIAN MEMORY FUNCTION

The illustration of a memory function (page 20) is a geometrical metaphor for expressing the higher hypothesis of how the mind transforms itself through the interaction of several *discoveries of principle* entirely in *the simultaneity of eternity*. For example, and as Lyn demonstrated many times, the Lydian discovery of principle that J. S. Bach made with the *Ricercare* (search) theme of the *Musical Offering*¹⁹ works in the same mnemonic biquadratic fashion.

When you learn to play a piece of music, for example, memorization is difficult at first, but it becomes almost effortless after a while, because the successive resolutions of musical dissonances that you encounter fuse together

goes through all of the keys, posits chromatic against diatonic, and constantly employs enharmonics. It ends with a series of double Lydians descending by half-steps, against a single tonic pedal point of D. The congruence between diatonic, chromatic, and enharmonic in theory, had been established, but it had a requirement in physical reality: a well-tempered instrument. Try playing it in a so-called Pythagorean tuning! Bach was attempting to do what he later did in the Well-Tempered-Clavier, in a single piece! Bach's first biographer, Forkel (of Gottingen University), wrote that Bach never composed anything else like it, before or after. Bach was both exploring the laws of the pre-existing musical universe, and creating them, at the same time!” See The Lydian Spirals below.

¹⁹ See David Shavin, [*The Strategic Significance of J. S. Bach's A Musical Offering*](#), The Schiller Institute.

naturally with the geometry of your mind as they become memorized simply by habit; including some help coming from the memory of the fingers.

The effort of repetition requires the decomposition and recomposition of the musical piece you are learning every time it is played; and this happens unconsciously to the point of becoming as automatic as taking a walk around the block. The question is: how can you reconstruct such a piece of music after you have stopped playing it for twenty years and have completely forgotten it? What means do you require for reconstructing that forgotten piece, again, without using the musical score?

It is the mnemonic efforts of such a deliberate habit formation which represents the axiomatic boundary condition of our ability to make discoveries of principle through the historical memory of mankind, as opposed to remembering the fleeting daily events of our moment to moment existence. Reality is not the sum of the fleeting moments that pass by during the day; reality is what we learn from history and what we do to improve such a history for those who come after us. Our memory is good or bad depending on whether we have good or bad habits of connecting with human historical progress.

My hypothesis here, therefore, is that great classical artists or great scientific and philosophical minds exploit the profound domain of their own memory as if they were going through the thorough composition of a great piece of music which, itself, embodies its own historical self-generating connection from the future to the past and back to the future, again.

Bach's *Ricercare* (search) theme of the *Musical Offering* from the development of which Lyndon LaRouche identified several major compositions by Mozart, Beethoven, and Brahms, is one of the best examples of musical principle to restore in order to properly connect the future with the past.²⁰ Such an endeavor

²⁰ Such memory functions represent *doubly-connected memory functions* of the form that I have developed with Leibniz and Fu Xi in my previous report on [NEWS FROM ANCIENT CHINA](#), which serves me as model for this report. As LaRouche emphasized in his Special Report, [The Continuing Hoax of 'Artificial Intelligence': The Multi-Billion Dollar Boondoggle](#), EIR, Vol. 12, No. 19, May 14, 1985, pp. 24-33: "It happens, that all forms in visible space, which are projections of conic forms of self-similar-spiral action, have everywhere the metrical characteristics determined by the Golden Section. This is the physics-basis of proof supporting J. S. Bach's values of

goes beyond the banality of the days of our lives, because what is at stake, here, is the historical progress of the human mind and of human society as a whole.

Here, it is useful to understand the Bergson notion of duration in order to have a better grasp of this notion of memory function with respect to the history of ideas, because the idea of historical duration is the physical space-time continuum in which human consciousness takes place and makes changes.²¹ What must be grasped is the idea of the perpetual improvement of ideas, which can only be grasped by intuition and never by some logical form of simple apprehension.

The interactions among perceptions, emotions, and conscious ideas are the result of a continuous fusion process between memory and the flow of ideas which comes from different human cultures and become selected through the imagination. Memory is not a place located in some abandoned outpost waiting to be rediscovered from some forgotten or distorted past; it is a subconscious fusion process which is constantly active among different human cultural heritages. Memory is in constant motion like a river of ideas flowing back and forth into consciousness and constantly being reintroduced back to the future as renewed.

The object of my investigation, here, is to examine how the pattern of memory changes through the perpetual energy-flux density of this fusion process and how it transforms ideas in the historical duration of physical space-time. Since duration is the changing process through which are assembled all of the activities of the mental life of humanity, and the memory function is the fusion process which holds together human emotions and consciousness within such a changing historical process, physical space-time must be understood in accordance with LaRouche's idea of *the simultaneity of eternity*.

The crucial aspect of memorization, therefore, is not to look for some past impression or some particular romantic moment of the past, as Wagner, List, or Debussy did with their music. Memorization is to search (*ricercare*) for how the

'equal tempering' in well-tempered polyphony, for example. That is the proper mathematical physics meaning of the cited discoveries of Pacioli and Leonardo. The adequate explanation for characteristic distinctions of living from non-living processes, must therefore be sought out within the Gaussian domain." (p. 29.)

²¹ See Henri Bergson, [*Creative Evolution*](#), Dover Publication, Inc. Mineola, New York, 1998.

mind resolves the process of *coincidence of opposites* as Nicholas of Cusa developed and in accordance with the singularity of what Lyndon LaRouche called the proper placement of the human singing voice.

Lyndon LaRouche emphasized in his Music Manual that an axiomatic transformation takes place in the mind of a singer, and increases his energy flux-density, when he is able to place his voice in such a way that it can pass, anti-entropically, from a lower register to a higher register. However, this axiomatic transformation can only take place when the tuning of the voice is based on middle C-256. In that case, such changes take place for all six human voices respectively at C, B \flat , A \flat , F \sharp , E, D. Such changes are generated by three Lydian quadratic spiral actions which can be easily identified as the three spirals of the Dominant, the Sub-Dominant, and the Tonic. The geometrical placement of those six voices also corresponds to the spherical construction of the Five Platonic Solids. Play the following Lydian spirals on the keyboard. Here is a simplified expression of such spiral actions.

The Musical Scale and the Register Shifts

C, C \sharp , D, E \flat , E, F, F \sharp , G, A \flat , A, B \flat , C

Three Lydian spirals of the Dominant, Subdominant, and Tonic.

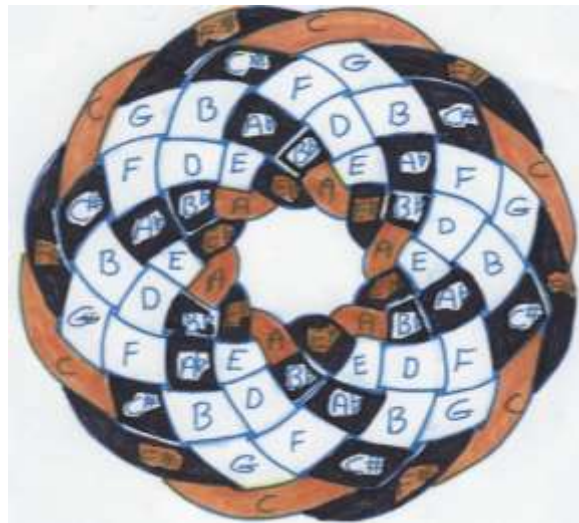
Spiral A, C, E \flat , F \sharp , generates G

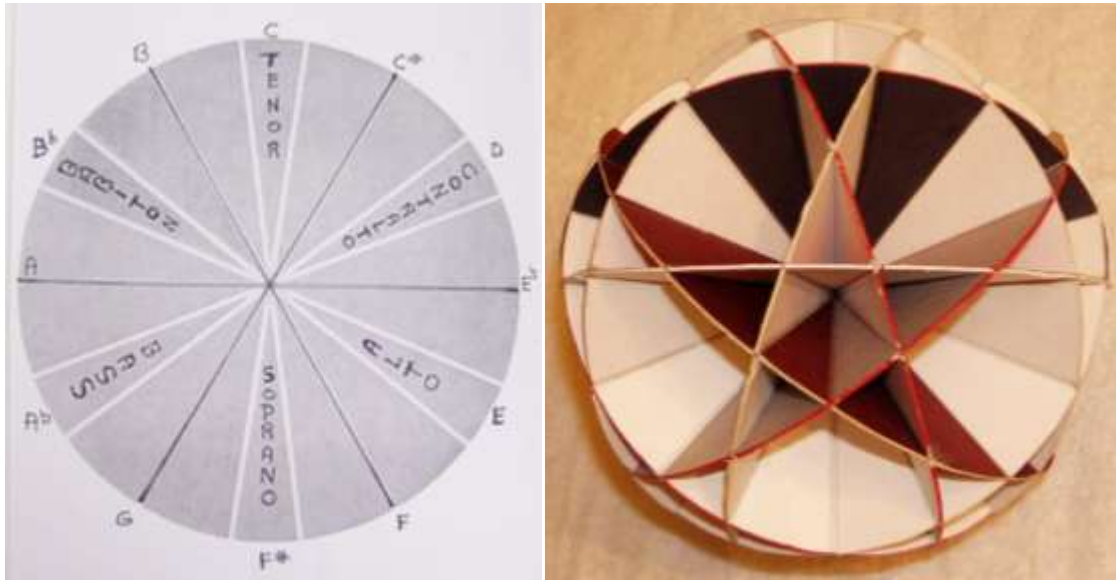
Spiral G, B \flat , C \sharp , E, generates F

Spiral F, A \flat , B, D, generates C

Six Voice Register shifts:

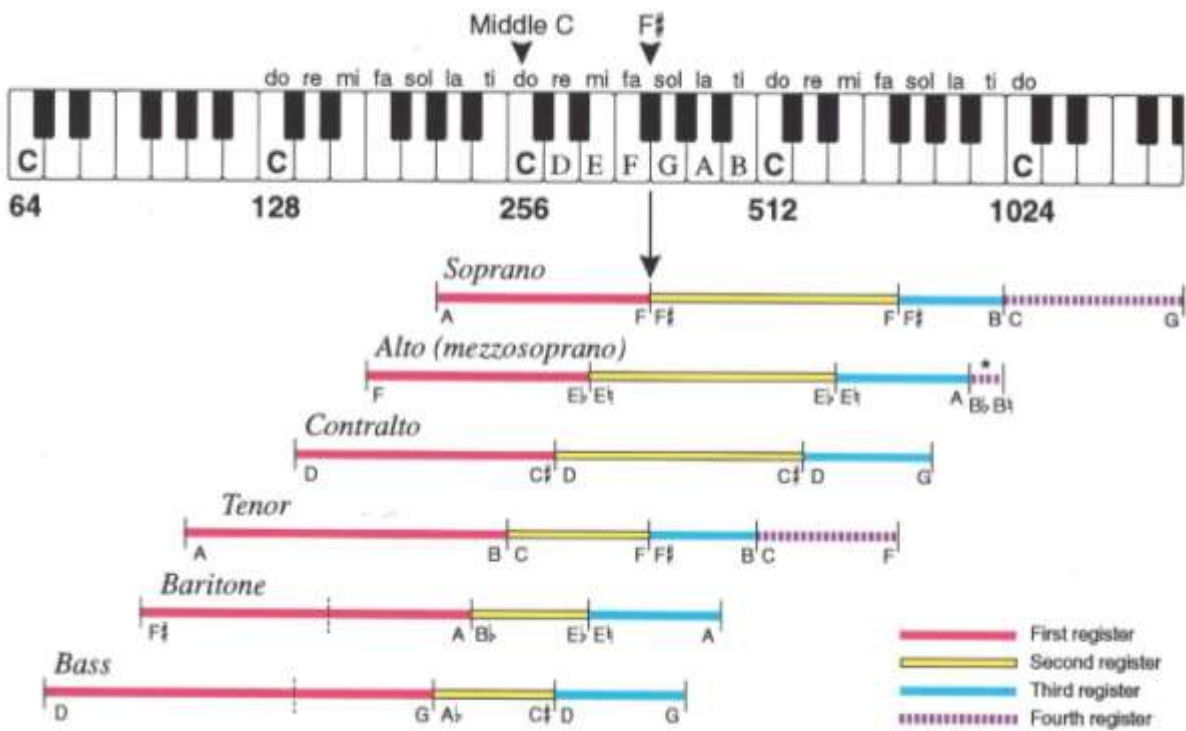
C, B \flat , A \flat , F \sharp , E, D,





Register Shift and Platonic Solid Sphere

The Six Species of Human Singing Voice, and Their Registers



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

[A Manual on the Rudiments of Tuning and Registration, Book 1](#), Schiller Institute, Washington D.C., 1992.

Imagine next that such spiral actions get resolved as the spiral action of the solar system in accordance with the Kepler-Gauss singularity of the asteroid belt as the process of resolution of the axiomatic transformation of the Planets inside of the Solar System. And lastly, apply that same principle of dissonance resolution to the domains that Lyndon LaRouche identified as the fields of scientific new discoveries. LaRouche formulated his hypothesis:

“Over the years, it has been my investigative hypothesis, that if the most characteristic feature of living processes, that which distinguishes them as living, rather than merely organic chemistries, were shown to be coherent with Riemannian nonlinear electrodynamics, the desired, comprehensive biological foundation for exposing the ontology of human psycho-physical parallelism could be isolated.

“It was clear, for the same reason, that the desired result could be found only along routes defined by optical biophysics, defining "optical" to signify some kind of Riemannian nonlinear electrodynamic functions within the bounds of all relevant portions of the electromagnetic spectrum.

“My approach to biology defines the so-called elementary physical particles, including photons, electrons, positrons, and so forth, as discrete singularities akin to our so-called ‘solitons,’ in a Riemannian, electrodynamic physical spacetime continuum. It follows, for reasons elaborated by the great Gauss in his reworking of Kepler's astrophysics, that the structure of the atom and of plasmas , and the characteristics of the periodic table , are determined by a Kepler-Gauss-Riemann kind of harmonic ordering within such a characteristically negentropic, nonlinear electrodynamic continuum.

“This is not merely my strong investigative hypothesis; it is the standpoint from which nonlinear effects weapons must be understood, if our understanding is to become efficiently adequate.”²²

The relationship that LaRouche identified between biology and music is the true psychophysical connection between mind and matter. For example, Lyn’s correspondence between the musical scale and the biological spectra can be represented as follows, within the range of forty two octaves:

“The musical scale and the biological spectrum

Mitogenic radiation	42 octaves + F-341 Hz (200 nanometers)
Pure protein alpha helix	42 octaves + E-326 Hz (208 nanometers)
DNA	42 octaves + C-256 Hz (265 nanometers)
Protein complex	42 octaves + B-243 Hz (280 nanometers)
Vision (lower bound)	42 octaves + G-188 Hz (360 nanometers)

“Register shift between ultraviolet and visible F-F-sharp

Chlorophyll-a	42 octaves + E-158 Hz (430 nanometers)
Carotene	42 octaves + 0-141.5 Hz (481 nanometers)
Photosynthesis action spectra	42 octaves + C-128 Hz (536 nanometers)

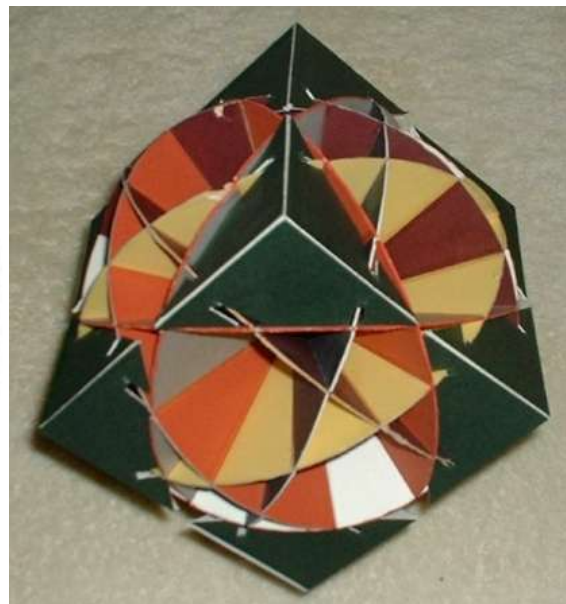
²² Lyndon LaRouche, *Non-Linear Radiation: The True Total War*, EIR, September 18, 1987, p. 28. See also how this principle relates to Bel Canto singing and the fight to bring the tuning of the musical system back to C-256 (A-432). As LaRouche explained: “If we employ the mathematical physics of Gauss and Riemann in an appropriate way, we are able to supply a rigorous form of intelligible representation of creative mental activity as this applies to valid fundamental discoveries in the physical sciences, and applies also to creativity in classical musical compositions of Bach, Mozart, Beethoven, et al. By examining counterpoint from this vantage-point, we are able to show how creativity is explicitly represented in such compositions, and how the registral characteristics of vocal polyphony function within the well-tempered domain provide the ground upon which creative activity works. It happens, that creative mental processes have the same characteristic we associate with the classical harmonics of natural beauty. Thus, beauty, so defined, so superimposed upon natural beauty, is the proper elementary requirement of art. Lyndon H. LaRouche, Jr., *Tuning and Register as Policy Issues*, EIR, Vol. 16, No. 7, February 10, 1989, p. 23.

Vision peak	42 octaves + B-122 Hz (560 nanometers)
Cytochrome	42 octaves + B-flat-114Hz (595 nanometers)
Chlorophyll-a	42 octaves + A-flat-102.25Hz (660 nanometers)
Bacteria photosynthesis center 1	42 octaves + G-94 Hz (720 nanometers)

“Register shift between visible and Infrared F-F-sharp

Bacteria photosynthesis center 2	42 octaves + E-80 Hz (850 nanometers)
Bacteria photosynthesis center 3	42 octaves + E-flat 75.5 Hz (900 nanometers)
Biosphere maximum radiation	42 octaves + C-64 (1,072 nanometers)

The key moments of biological processes range 42 octaves up from the F above middle C to the C two octaves below middle C, which is itself 40 octaves above C = 256. All values are precise musical tones in cycles per second (Hz) plus 42 octaves. The initial experimental values in wavelengths are given in parentheses.”²³



²³ Quoted from Lyndon LaRouche, *Beethoven As A Physical Scientist*, EIR, Vol. 16, No. 22, May 26, 1989, p. 22. Established by Warren J. Hamerman, *The Musicality of Living Processes*, 21st Century Science & Technology, March-April 1989.

The circular form of the six voice register shifts and the generation of the Five Platonic Solids from the Platonic Chora sphere of ten circles.

Note how the six voice register shifts partition ten circles as they form the basis for the spherical generation all of the Five Platonic Solids. The six register shifts can also be derived continuously through the three Lydian spirals in counterclockwise succession: **C, B ♭, A♭, F#, E, and D**. In order to discover how such Lydian spirals generate themselves, performatively, play the following on the keyboard:

C, E ♭, F#, A generates **B ♭**
B ♭, C#, E, G, generates **A ♭**
A ♭, B, D, F, generates **F#**
F#, A, C, E ♭ generates **E**
E, G, B ♭, C# generates **D**
D, F, A ♭, B, generates **C**

Note how the following performative Lydian cycle exercise generates the Lydian spiral of **C#, E, G, B ♭**, by anticipation.

P. BEAUDRY Performative LYDIAN Cycle Oct. 2013

Performative Lydian Cycle exercise

Next, ask yourself: how can such a musical transformation cause an axiomatic change inside of your mind? The change can occur only through the appropriate placement of the voice which anticipates the next step to be made. And the next step is like the extraterrestrial imperative; you don't know where you are going to end up, but you know how to get there. The essence of such a change is best exemplified by what Lyn said about the method of an axiomatic change:

"The problem here, is that you have a population which is not really fully human any more. They've lost their sense of human identity; they think of themselves as, more or less, human cattle, who have to go along with popular opinion, or go along with the other members of Congress, or go along with this to get along. And then, when you try to influence them, they'll listen to you, *if they think you fit within an institutional framework, in which you accept these mythologies, these arbitrary beliefs*. When it is precisely those axiomatic assumptions which are wrong.

"Now, how do you get someone to change an axiomatic assumption? You don't scream at them. You don't try to *agitate* them. That's only going to make them worse. You make them *stop, and think*. Forget the fried chicken wings. Stop trying to bake a cake in the washing machine's agitator. You don't go to glory that way [laughs].

"Now, the problem here is, is that, the lack of confidence in doing that. And the lack of confidence comes from very deep roots in some of our people, at all kinds of levels, in the association. First of all, most people in our association, particularly those who were born after World War II, but practically everybody born after World War II, is automatically incapable of thinking, you know, unstable. Highly neurotic. Incapable of sustained, clear, reasonable thought. Because they were educated, chiefly, on the basis of adapting to things they were taught: You learn this and you'll pass your grades. Pass your grades, and you'll be promoted. Be promoted, and you'll go to college. Pass your grades in college, and you might get a professional career. Keep your mouth shut, and do as you've been told in your profession, and you might not be thrown out of your profession. Keep doing that, and you might become rich.

"And then, about the time you're retired, and about to die, you're permitted to say all kinds of old grouchy things that really don't mean much, in a sort of a faint recollection, that along the previous 60 to 70 years, you've been so brainwashed, you forgot what it was you wanted to say, 60 or 70 years ago, when they told you to shut up and learn what you're being told.... People among these younger generations who can think are a precious rarity (compared to his generation). And those who have that ability, in any degree, are a precious rarity; the whole population depends upon it. If you have those qualities, don't give them up! Don't betray them! Because your ability to violate the chicken-wing mentality is precisely what makes you really human, makes you valuable.

"Now, people enjoy that, really, once they get the hang of it, then, they get very nervous. They may be afraid of what'll be done to them. They may feel like the ancient Christians, sitting up there, waiting for the lions to come and get them, or something. There's really *fear* out there now. It's one of our big problems. But, the failure in method, is the tendency to slip to a kind of deductive approach to what you think are the hot-button prejudices of people with whom you're speaking, particularly on the issue which you're addressing.

"The same thing comes up in geometry, in the so-called Euclidian classroom geometry, in which you get, this guy, instead of thinking, instead of using *reason*, the way we do in physical geometry, you try to use the Sherlock Holmes method."²⁴

CONCLUSION: SOLVING THE BERGSON TWO MEMORY PROBLEM

Most public servants live two lives because they are pulled apart between two centers of attraction; they are divided between two memory masters they tend to serve: the memory which ties them to their personal family life and the memory which tells them to serve mankind through their nation. These are the two memories that Bergson considered as separate and independent of each other. How can you serve those two masters at once? This is the axiomatic dilemma that the modern western man is forced to confront, under the present Galactic

²⁴ Lyndon LaRouche, [How Do You Organize Conditions of Systemic Crisis?](#) Conference Call, October 22, 2001.

circumstances, and is being called upon to resolve in the months ahead. How can you solve this two memory problem?

This is a very practical question that Fuxi began to investigate almost five thousands of years ago. This is the question that Leibniz attempted to solve three hundred years ago in his East-West dialogue with the Chinese people. He saw this question as a *conflict of opposites* to be resolved between the East and the West and he summed up the matter as follows:

“Certainly the Chinese above all others have attained a higher standard. In a vast multitude of men they have accomplished more than the founders of religious orders among us have achieved within their own ranks. So great is obedience toward superiors and reverence toward elders, so religious, almost, is the relation of children toward parents, that for children to contrive anything violent against their parents, even by word, is almost unheard of, and the perpetrator seems to atone for his actions even as we make a parricide pay for his deed. Moreover, there is among equals, or those having little obligation to one another, a marvelous respect, and an established order of duties. To us, not enough accustomed to act by reason and rule, these smack of servitude; yet among them, where these duties are made natural by use, they are observed gladly. As our people have noticed in amazement, the Chinese peasants and servants, when they bid farewell to friends, or when they first enjoy the sight of each other after a long separation, behave to each other so lovingly and respectfully that they challenge all the politeness of European magnates. What then would you expect from the mandarins, or from Colai? Thus it happens that scarcely anyone offends another by the smallest word in common conversation. And they rarely show evidences of hatred, wrath, or excitement. With us respect and careful conversation last for hardly more than the first days of a new acquaintance--scarcely even that. Soon familiarity moves in and circumspection is gladly put away for a sort of freedom which is quickly followed by contempt, backbiting, anger, and afterwards enmity. It is just the contrary with the Chinese. Neighbors and even members of

a family are so held back by a hedge of custom that they are able to maintain a kind of perpetual courtesy.”²⁵

You ask: what does this have to do with the two memory problem of Bergson? Well, when memory is viewed as a personal property, the two memories are perceived to be independent and strictly opposed to one another; but when memory is understood as a social function for the improvement of mankind, the mysterious opposition of this double function becomes dissipated.

FIN

²⁵ Gottfried Leibniz, [*Novissima Sinica*](#). Gottfried Wilhelm Leibniz, *Writings on China, Open Court*, Chicago and LaSalle, Illinois, 1994, p. 47-48.