



From the desk of Pierre Beaudry



INFERENCEAL KNOWLEDGE AND THE DISSYMMETRY OF THE UNIVERSE

By Pierre Beaudry, June 11, 2012.



“Nor should it [The Holy Trinity] be taken as a meaningless resemblance; but it should be reckoned as one of the causes, as a form and archetype of the universe.”

Johannes Kepler

“The eye is the window of the human soul through which it examines its way in the world. It surpasses nature because things made by nature are finite, while the works that the eye commands to the hand are infinite.”

Leonardo Da Vinci

“Life is dominated by dissymmetrical actions. I can ever foresee that all living species are primordially, in their structure, in their external form, functions of cosmic dissymmetry.”

Louis Pasteur

FOREWORD

This paper is aimed at demonstrating how creativity requires a dissymmetrical and self-reflective form of inferential knowledge. The implications are that the *dissymmetry principle*, discovered by Louis Pasteur, is the living principle that allows for higher energy flux-density to be generated and to flow smoothly in the universe as a whole. Consider dissymmetrical action as a higher form of Tai-chi of the mind. The report has the following six epistemological exercises:

1. THE TRIPLY-CONNECTED PROCESS OF CREATIVITY
2. THE HIGHER DIMENSIONALITY OF INFERENTIAL DISSYMMETRY
3. THE BRITISH FAILURE OF REDUCTIONIST CURVE FITTING
4. THINKING PROCESSES ARE NOT TICKING PROCESSES
5. REFLECTIONS ON THE DISSYMMETRY OF THE MIRROR
6. THE DISSYMMETRICAL FUNCTION OF CLASSICAL MUSIC IN PHYSICAL SCIENCE

INTRODUCTION

Why is logical deductive knowledge bad for you and why is inferential knowledge good? In the present situation, the current generation of young men and women of about 20 to 25 years of age in the Americas and in Europe more generally, is almost incapable of cognitive insights into any problem solving situation whatsoever, because, today, almost every last trace of inferential knowledge has disappeared, or has been kept away from them.

The most significant source of such inferential knowledge has been transmitted from one generation to the next for several centuries through classical education. However, the generations born after World War II, that is, after 1945, lack the classical education that most European and American generations of pre-World War II had access to.

After the assassination of John F. Kennedy, in 1963, the new generations of school children of North America were excluded from the disciplines of ancient languages, such as Latin and Greek. In other words, post WWII generations have all missed the social, cultural, and historical advantages of a disciplined classical education, especially in the classical music repertoire, which had been the heritage of cultured world citizens going back almost 3,000 years. We are dearly paying the price of this mistake today, because the education system has degenerated to the point where young people are merely responding to sense perception stimuli, and nearly all traces of creativity have been lost. As a result, almost no one of those generations has the power of problem-solving insights that previous generations had, because the sense of the future has been lost.

This report will investigate different aspects of creativity in relationship with inferential knowledge, and will examine them from the standpoint of how they can be accessed through the higher dimensionality of the principle of dissymmetry, as they are formed within a triply-connected type of

Riemannian manifold. This orientation is inspired by the hypothesis which Pasteur had initiated in his investigation of the dissymmetrical influence of electromagnetism on life.

The spirit of investigation, exemplified by Pasteur, is a method of scientific discipline that has been kept away from the post Roosevelt generations. Deductive reasoning has everywhere replaced and opposed creative imagination of science in its opening to the future, and therefore, the access to the future has been closed to them. This is why they have been called cynically the “no future generations.” They have been enclosed into a deadly deductive method of only understanding the past and the present without access to investigating the future. And so, the most pernicious danger to the human species lies precisely in ignoring the uncertainties of the unknown in the immediate future ahead.

1. THE TRIPLY-CONNECTED PROCESS OF CREATIVITY.

The fact that creativity functions like a triply-connected manifold is a conception that goes back primarily to Plato and to Pythagoras. If you wonder where you can find such a triply-connected manifold, just look in your own mind and you will discover an open-ended doubly-connected Torus, which is moving by a third and higher rotating action, along its central axis. It is that third form of action which is galactic and which drives the creative process of the two other circular actions from the top down.

In August of 2001, I wrote a short book on constructive geometry for children entitled [LANTERLAND, A Rabelaisian World of Platonic Discoveries](#). It was never published because, as Lyn said to me when I handed him a copy a few weeks later, for his birthday: “Baby Boomers will not understand this!” A free (first draft) electronic copy of this book can be found on line at my galactic parking lot at, www.amatterofmind.org. From the very beginning of the book, the reader will find that the power of creativity resides in the willful discipline of the human mind to make discoveries, and that a discovery always involves three fundamental steps: 1) perplexity, 2) awe, and 3) laughter.

In the case of a good joke, you might understand laughter as the explosive liberation of the human mind, which takes place when a person suddenly discovers the solution to an incompatibility between two conflicting situations. In that sense, laughter is the tension-relieving mechanism that goes off automatically, like the pinch effect of your mind, after your expectation has been fooled into thinking in the wrong direction.

However, in the case of a discovery of principle, laughter is the surprise expression of joy of creativity that comes after a more or less sustained period of perplexity becomes transformed, from the outside, into an irony. The intermediary state, between laughter and perplexity, is a moment of awe or disbelief, which acts as an inversion bridge between the two. That moment is sometimes accompanied by the expression “This is crazy! You’ve got to be out of your mind!” This is the reason why, in any discovery, laughter always comes by time reversal, because laughter is the proper inversion of the state of perplexity.

These three stages do not, however, come naturally to anyone, but rather as a result of a disciplined and willful creative activity, whose purpose is oriented to the discovery of a new universal principle that does not yet exist. Generally speaking, these three steps are the exact opposite of what you have learned in your education, because they are driven from the future and never from the past. Thus, these three stages of discovery represent the most fundamental steps of creativity in the development of the human mind, at any moment of its development, and each moment can be identified as participating in the generation of higher levels of energy flux-density. The same three levels are reflected in the creative process of the universe as a whole, in the three Vernadskian levels of the Lithosphere, the Biosphere, and the Noosphere, but which must be treated in the reversed order of Self-consciousness, Consciousness, and Pre-consciousness.

The point to be made, finally, is that, when the process of creativity takes hold of you, this three-pronged forceps of truth will tend to squeeze most of your false underlying assumptions out of you, and will tend to liberate your mind from the trash and noise of banality that surrounds your daily life. That is why, more than any other thought process I know, this is the most desirable state of the mind to be in. This is what Leibniz had identified as the state of happiness. As Lyn demonstrated, again and again, metaphor is the most natural language modality of expressing such an axiomatic situation of change.

Since in every human mind, there exists a natural predisposition for this sort of triply-connected function, it is not an accident that from the standpoint of history, the first form of triply-connected creative dynamic took the form of the Christian Holy Trinity. This took the form of the *Filioque* paradox which was developed, first by Saint Augustine, and then by Charlemagne, and later by Nicholas of Cusa, under his idea of the Spherical Vision of God. The same triply connected creative function was adopted by Johannes Kepler in understanding the creative process of the Solar System. It is the evolution of this historical triply-connected function that must be understood, today, as if the universe as a whole were expressed in the forms of self-consciousness, consciousness, and pre-consciousness, from the top down. Kepler expressed this triply connected function in the following manner:

“There were three things in particular about which I persistently sought the reasons why they were such and not otherwise: the number, the size and the motions of the planetary orbits. That I dared so much was due to the splendid harmony of those things which are at rest, the Sun, the fixed stars, and the intermediate space, with God the Father, and the Son, and the Holy Spirit. This resemblance I shall pursue at greater length in my *Cosmographia*.” (Kepler, *Mysterium Cosmographicum*, Abaris Book, New York, 1981, p. 63.)

Bring this analogy a step further and you will discover that the Holy Spirit which fills the “intermediate space” between the Sun and the fixed stars represents the living creative principle of mind in the universe. Therefore, you have an appropriate conception whereby the so-called “physical force” that holds the system of the universe together is actually the spiritual state of mind of creativity; that is to say, a living creative mental function acting as the highest principle within the physical universe.

This is the Hylozoic principle of Thales and Plato which expressed the creative ordering principle of the universe. During the Medieval period, the same idea was translated as the “world soul.” However, this living conception of the universe was subverted by Aristotle who insisted on introducing the Delphic cult of the “perfect circle.” This reductionist view was adopted by Ptolemy and his sycophant Newton,

who later reduced and banalized the whole Platonic conception under the reductionist idea of “gravitational force” of attraction at a distance.

But, in the meantime, after working out six years of Tycho Brahe’s data about the orbit of Mars, Kepler discovered in the observation results of the positions of Mars, that there was a persistent anomaly of eight minutes of arc which could not be explained by means of simple circular action alone, be they circular cycles or epicycles. For the first time in the history of physics, Kepler had to introduce the idea of dissymmetry in order to replace the false Aristotelian symmetry of the universe. “Clearly, then,” said Kepler, “[what is to be said] is this: the orbit of the planet is not a circle, but comes in gradually on both sides and returns again to the circle’s distance at perigee. They are accustomed to call the shape of this sort of path ‘oval.’” (Johannes Kepler, *New Astronomy*, Cambridge University Press, New York, 1992, p. 453.) Here, in a single moment of a triply-connected flash of discovery, Kepler understood why he had been perplexed for a period of six years. The entire view of the universe had been reduced to an Aristotelian conception of a false symmetrical universe.

The mystique of the circle as the fixed mental image of perfection had been a fallacy of composition ever since Aristotle. With Kepler, the oligarchical notion of fixed perfection was broken. But, why choose the ellipse? Because, the ellipse represented the dissymmetry of a divine creative process as opposed to the fixed symmetry of cycles and epicycles that a mechanistic Aristotelian god was obliged to establish *a priori*, before all time and from outside of the universe. Kepler’s “oval” had revived the potential for creativity in human knowledge with God residing inside the universe. This was the first time in the history of physical science that someone had dared go against this Aristotelian world view of perfect and had broken the symmetry which had dominated Europe for two thousand years.

2. THE HIGHER DIMENSIONALITY OF INFERENTIAL DISSYMMETRY

“Truth is so excellent that by her praise, the very smallest things attain to nobility.”

Leonardo Da Vinci

Let’s start with chirality in the creative process itself. The most characteristic aspect of mental chirality of the creative process is the self-conscious thinking process going through an axiomatic transformation of increasing energy flux-density through a discovery of principle. This chirality principle develops through a triply-connected Riemannian manifold which involves, 1) the human mind as a subject of knowledge, 2) the universe as a whole as an object of knowledge, and 3) the universal history of this knowledge arrangement mixed with the usual defective sense perception observations. It is the internal dynamic of internal change of such a cognitive manifold that John Quincy Adams had identified as a superior knowledge to British empiricism, because it gave him the ability to see what people were thinking, from the outside in.

For the purpose of clarifying the concept of inferential knowledge in opposition to positive knowledge, I restate, here, in its entirety, the pedagogical point that John Quincy Adams made to his counterpart at the British Foreign Office, the leading British empiricist of his day, Jeremy Bentham. Adams wrote:

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

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

He replied little to this argument, apparently because he saw that my opinions were decided, and he did not wish for controversy...From the general tenor of his part in this conversation, and from several inconsistent remarks of his upon other occasions, I consider him as entertaining inveterate prejudices against all religions, and that he is

probably preparing a book against religious establishments. If he had found my sentiments congenial with his own, I have no doubt he would have disclosed his sentiments more fully.” (John Quincy Adams, *Memoirs of John Quincy Adams, His Diary from 1795 to 1848*, edited by Charles Francis Adams, Philadelphia, J. B. Lippincott and Co, Vol. 2 1877, p.464-5)

Thus, inferential knowledge is a form of Learned Ignorance in the manner understood and developed by Nicholas of Cusa, because it enfolds from the top down, with an intention to reproduce the principle of creativity in one’s mind, by improving the powers of your neighbor’s mind, and without relating to positive notions or deductions generated from sense perception. In that sense, inferential stands for truthfulness of a moral understanding about the universe as a whole; that is to say, for a telepathic form of knowledge that goes back to Plato, and by means of which we shall also be known from the future generations. In other words, the morally connected triple form of 1) love of mankind, 2) truth of willful change, and 3) the passionate dissymmetry of truth and love of mankind enfolds together. Now, look at how Peter Brueghel the Elder expressed the same idea with his peasants dancing under the gallows. (**Figure 1**)



Figure 1. Pieter Brueghel the Elder, *The Magpie on the Gallows*. (1568)

What did that unexpected sudden change do to your mind? With the three moments of a discovery of principle in mind, perplexity, awe, and laughter, ask yourself the question: What is the curvature of that irony? *The Magpie on the Gallows* is a *post mortem* joke that Brueghel played on his wife by leaving the painting to her in his last will and testament. It is a time reversal painting which beautifully represents the creative principle of Brueghel's irony. If a magpie represents, in the popular culture, the gossipier who deserves the gallows, it also represents for the creative mind the dissymmetrical weaving process of underlying principles that underlie the universe as a whole.

The painting stands as a metaphor of Brueghel's life as an artist, like a multiple pun concept of his art of discovery. For instance, the Flemish proverb: "*Aan de gaig dansen*," meaning "Dancing under the Gallows," or "Shitting under the Gallows," gives the Rabelaisian flavor of the piece. In fact, barely visible in the left lower corner of the canvas, where he appended his signature and date, Brueghel represented an almost invisible individual with his pants down, unloading himself. This painting is also a clear reference to the unstable and changing political situation of the Lower Countries at the time. The date of the painting, 1568, is the year that the Spanish Duke of Alba was sent to the Netherlands by the king of Spain, Philippe II in order to put an end to the Dutch Protestant Revolt. The Revolt will last 80 years and will end after the Thirty Years War, at the Peace of Westphalia of 1648.

Everything in the painting is bouncing around and is undulating, from the top down, which is where the spectator stands, looking down at the scene. The trees are twisted around in spiraling harmony with the rhythmic waves of the hills and of the alternating change in lighting down to the serpentine river and beyond the distant valley below. The unity of effect is dominated by an overpowering rhythm of contradictory wave motions that include even the gallows twisting in the winds like the dancers under them. The question that Brueghel also provokes with his magpie standing on the gallows is: "Since the only way one can get off from the gallows is by swinging, which way will the swing go, from left to right or from right to left?" By this curious reference to chirality, Brueghel is telling us more than what is usually known about magpies. When dealing with the minds of other people, what most people forget is they are dealing with mental directionality of right, left, down, up, back, and forth, because they don't realize that others are as mirrors of themselves.

One curious aspect of magpies is that they are some of the most intelligent birds in the world who are capable of telling their right from their left in a mirror. Just for that, they deserve more than the gossiping slander that is told about them by backbiters. When a magpie sees itself in the mirror, it talks and dances with the image it projects; but it is intelligent enough to recognize that the image is not its own. It recognizes itself as someone else. The irony of chirality is precisely how the magpie sees itself. In the same manner, the creative mind works by inversion of its own image projection inside of a mirror, but as something else. And the reason why most people don't understand that, is because they agree to be deceived into thinking that what they see is really who they are. And, that is an illusion. In reality, they are not what they appear to be, because what they see is how they appear to someone else. The question here then becomes: how can you know yourself through someone else? How can you include their knowledge of you within your knowledge of them? That is to say, how can you insinuate yourself inside of a universe as you are also known? Let me draw this out for you in a mirror. But, don't go Obama on me; this is not a narcissistic exercise.

After you have drawn a straight line on a piece of paper, there is no way to tell if you drew the line from right to left or from left to right, from top to bottom or from the bottom up. The directionality of the line is as one-sided as the two halves of a circle. To demonstrate that, put the line and the circle on top of each other in front of a mirror and you will not see any difference between them and their images. They have no chirality, no dissymmetry. Their images are perfectly symmetrical and one can be superimposed onto the other. In other words, the mirror does not tell you how they were drawn.

However, if you draw a left or a right spiral on the same piece of paper, all sorts of confusion will arise in your mind. Why? Because you have added a dimensionality, and the mirror will show you how you drew them. Spirals have chirality like you and the mirror have, because all express self-reflection. The spiral pertains to a doubly-connected circular action in which two circular motions intersect one another at right angle. It has a higher dimensionality than the circle. The same thing applies to the oval or the ellipse, because an ellipse is the shadow of a spiral action which implies two circular actions. Once you have two circular motions connected together at right angle, you have created a new form of opposite and incompatible triply-connected relationship: right and left, back and forth, and up and down. However, no matter how you combine these relationships, the doubly-connected motion of a spiral will always move in two opposite circular directions which need each other as much as they completely contradict one another. Let's take a few examples.

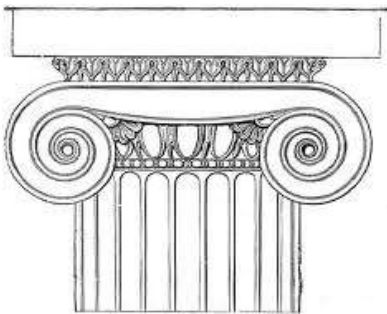


Figure 2. Ionic capital.



Figure 3. *Messier 51.* Double right-handed spiral nebula.

Observe closely how the two different direction of the motion in **Figure 2** are opposed and inversed in the plane. What's the difficulty, here? These two opposite motions represent an inversion of two spirals in such a way that one cannot be mapped onto the other, because each is the mirror image of the other, and their image reflections are incompatible because one moves to the right and the other moves to the left. Therefore they will never meet unless you add another circular action, another dimension. However, this image is not what it appears to be.

There is something troubling, here, in the Ionic capital of **Figure 2**. If you put it in front of a mirror, it does not change. You have fooled the mirror, because the left spiral is right-handed and the right spiral is a left-handed! Why is each of those two spirals contrary to expectation? Why does that contrariness remain the same in a mirror? Is it because they do change, but the self-reflection of the self-reflection reflects no change? They do change, yet you cannot see the change.

Did Pheidias know something that we don't know when he designed the Ionic capital of the Erechtheion? Are these true motions? Why is the *Messier 51* double right-handed spiral nebula (**Figure 3**) like the left spiral of **Figure 2**, yet it is rotating in a counterclockwise manner? Here, you have every reason to be perplexed. A little more patience and you will see how to solve all of these contradictions.

In order to understand why these apparent paradoxes exist, the mind has to become familiar with inversions through motion. In other words, a galaxy does not enfold in the same way that it unfolds. For instance, the mind has to elevate itself above the plane in order to reach the higher dimensionality of dissymmetry, from the top down. This is not the same thing as the simple minded "third dimension." The traditional "three spatial dimensions" are fallacies of composition. The so-called "three dimensions" are not real; they are merely fixed sense perception illusions. Chirality is the real dimension you are looking for and, as in Tai-chi, dissymmetrical problems get resolved through rotational action, not sense perception.

In other words, you can change from right handedness to left handedness without changing the motion. This means that when you project a right hand spiral from the top down, you must also consider that the opposite motion from the bottom up is left-handed. Confusing? Only if you don't know what direction you are taking. You may not know where you are going to end up, but you must learn how you are going to get there.

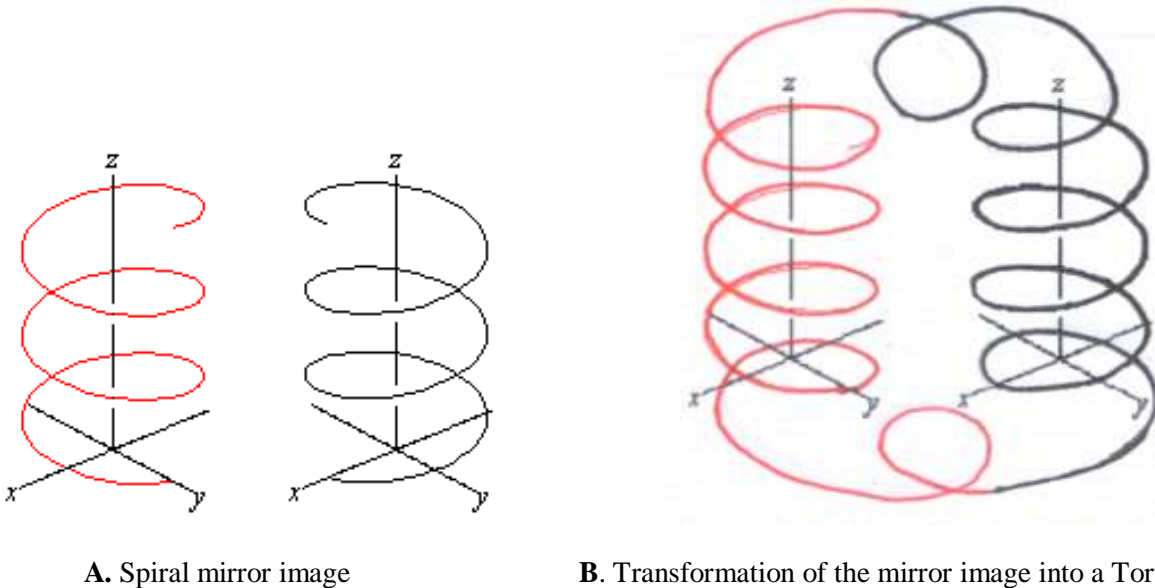


Figure 4. A. Left-handed spiral (red) and right-handed spiral (black). **B.** Torus connection of the two images of the spiral image of **A**. According to Pasteur, life is perpetrated universally when the principle of dissymmetry organizes a continuous-self-reflective-doubly-connected-manifold of universal connectedness. Death occurs when that connectedness is severed.

Take **Figure 4 A and B**. The two spirals are contrary, the red one is left-handed and the black one is right-handed. However, there is a way to go up and down those spirals continuously without changing the motion; that is, by transforming the chirality of the mirror image into a toroidal spiral action. The mirror is a Torus and the Torus is a mirror. Simply enfold the mirror image opposition into a higher

dimensionality of action by going up one spiral and down the other. Thus, by going from a simply-connected motion to a doubly-connected dissymmetric motion, it is as if you had solved the paradox which, only a moment ago, was impossible to solve. It is like Pasteur solving the paradox of the Pythagorean transmigration of life in the perpetual cycle of life after death. As Pasteur put it:

“It is an absolute necessity that the matter of which living beings are formed should return after death to the ground and to the atmosphere in the shape of mineral or gaseous substances, such as steam, carbonic acid gas, ammoniac gas or nitrogen – simple principles easily displaced by movements of the atmosphere and in which life is again enabled to seek the elements of its indefinite perpetuity. It is chiefly through acts of fermentation and slow combustion that the law of dissolution and return to a gaseous state is accomplished.” (Quoted by René Vallery-Radot, *Op. Cit.*, p. 149.)

This is the way to look at the difference between the Biotic and the A-biotic from the vantage point of Pasteur. Indeed, for Pasteur, life is such a process of perpetual motion that after death, living beings return to the domain of the non-living as a form of equipotential mineral or gaseous substances, whose resources are recaptured by the dissymmetrical actions of the galaxy, the Sun, the Earth, the atmosphere, and the magnetic field by means of which life is regenerated and propagated again, as it was originally. In other words, life comes from life, and there is no such a thing as spontaneous generation.

However, if perplexity persists after you have gone through this, then, you are missing the connection to the higher dimensionality of dissymmetry of which these opposing directions are merely shadows. The dissymmetry of such an epistemological direction finder should be understood as the true dimension of living physical space-time, because that is the dimensionality which differentiates living human cognition from the non-living processes.

3. THE BRITISH FAILURE OF REDUCTIONIST CURVE FITTING

Now, how can you use inferential knowledge, like John Quincy Adams did, in dealing with the problem of British reductionism? Take the book on *The Curves of Life*, by British author, Theodore Andrea Cook, as a test case. During his research, Cook came close to making a discovery of principle when he saw that there existed a common denominator between mental activities and what he called the “rhythmic throws” of living processes; but he got scared, when he realized there was a change of “flux” between the organic domain and the inorganic domain. As a result, instead of embracing the rigorous thinking of Pasteur, he went to bed with Darwin. He did not pursue his dissymmetrical hypothesis as a legitimate mental process, because he chose to blind himself with a very common mistake that all British reductionists commit when they use geometry. He used geometry for the purpose of curve fitting. He chose Aristotelian symmetry.

Indeed, Cook not only used the logarithmic spiral as a curve fitting measure for everything he “saw” in the living universe, but he measured everything he saw based on this accommodating geometric sense perception projection. What he failed to account for was the function of the mind. He failed to

account for the increasing of flux-density between the living and the non-living. In fact that actually scared him. He was not wrong in emphasizing the measure of the golden section that Renaissance artists like Leonardo da Vinci had developed extensively, but he deliberately missed the higher dissymmetrical measure of change that was involved in Leonardo's work. I will demonstrate what he missed below in the left-handed Leonardo drawing of Amboise that Cook himself used without understanding its intention.

The point to be understood, here, is to apply Lyn's galactic method of increase in energy flux-density from the top down, and to actually understand the non-living from the vantage point of the living, and the living from the vantage point of the cognitive in such a manner that the truth of such an ordering of changes between them is respected, and could never be found in or attributed to any mathematical formula. This is where Cook, and so-called British scientists in general, failed miserably. Why? Because they refuse to look for what is not there. And, the reason why they don't look for what is missing is because they choose to believe in their own deception. They know they are in error, yet they choose to do it just the same.

Similarly, no matter how seductive the formula may appear to be, even the Fibonacci convergence series, or a variation on some *Pentagramma Mirificum*, is a reductionist trap, because the unit of measurement of the golden section is simply a self similar function, a series whose consecutive powers are all the same whatever proportion you may start with. Therefore, whatever exciting "rhythmic throws" they may bring to your discovery, they will stop pulsating as soon as the human mind introduces the fallacy of composition of curve fitting. This is why a higher dimensionality of "rhythmic throws" must be introduced as a higher power with a corresponding dissymmetrical increase of energy flux-density.

The problem with focussing on the so-called "geometry of life" is that one thinks like a mathematician. For example, Cook assumed that the mathematical Fibonacci spiral was the perfection that a real living nautilus was attempting to converge on. He even went as far as to think that whenever a nautilus does not come close enough to the mathematical curve of such a spiral, it will tend to die, because it is moving away from its archetype of life. What an irony! Has it not dawned on him that it might just be the opposite that is true? The closer to a mathematical curve the nautilus gets, the closer it gets to becoming dead. Why? Because the intention of life itself is to attain the highest form of dissymmetry, not the most perfect form of symmetry. That is what Pasteur had discovered.

In other words, the symmetrical measure of the golden section series must be subsumed within a dissymmetrical series of increases in energy flux-density; a higher manifold that Lyn exemplified with the idea of nested hyperbolic cones as a heuristic metaphor of the evolution of life on Earth during the last ½ billion years. Thus, it is one thing to look for the curvature of life in individual species, and it is another to look for the curvature of change between galactic life-cycles and between life and non-life.

What the Fibonacci series should be telling us, instead of this British reductionist curve fitting measure, is that growth always implies the higher measure of an axiomatic change, which only the metaphorical process of the creative mind can provide a glimpse of, from the top down, and "*as if through a glass darkly*." The sunflower embodies the footprints of such a metaphorical power by deploying its seeds for the purpose of obtaining maximum Sun exposure. The nature of this power,

however, can only be attributed to the creative power of nature. Concentrate on **Figure 6**, and you will discover that the seeds of the Sunflower grow in right and left spirals simultaneously.



Figure 6. Right and left spirals in sunflower seeds.

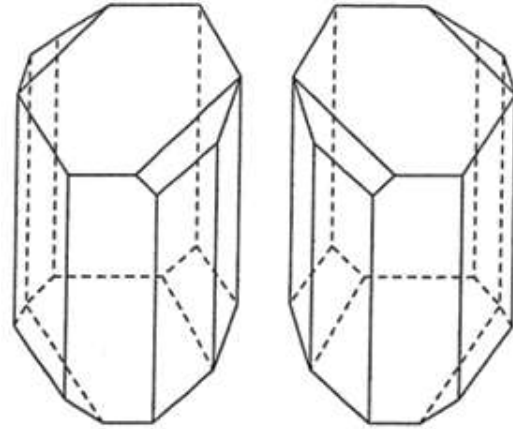


Figure 7. Pasteur's tartrate crystal inversion.

The sunflower is a unique experiment that is much like Alice going through the looking glass: it is its own mirror image, projecting itself into the Sun. In fact, sunflower seeds are an excellent metaphor of chirality, because they reflect an integrating process of both right and left-handed spiral action, a shadow of both life and mind at work in the galaxy. The point to make is that only the creative process of life and mentation are capable of such inversions which unite opposite and dissymmetrical processes, as it is exhibited in any living body and any creative mental process. Every living being and every mind exhibits such chirality, as opposed to the symmetrical character of non-living self-similar spiral action. Look how the logarithmic spiral is integrated implicitly within the architecture of the Parthenon, without displaying the fallacy of curve fitting. This is how you elevate stone to the level of cognition.

Pheidias and Iktinos knew what they were doing with their [Parthenon of Athens](#). That masterpiece of architecture was a celebration of living and cognitive creativity. The dimensionality of spiral chirality, both conical and cylindrical, is the reason why everything in the universe moves in the growing pattern of spiral actions. As I have demonstrated in previous reports, such chirality actions are doubly-connected actions in the manner of a Riemannian Torus manifold. This manifold is also a shadow of the infinity that Leonardo saw in the eye as the window of the inquisitive mind. The biodiversity of the spiral can, therefore, be found everywhere, in the large as in the small, from the living dynamic of the galaxy to the sub-atomic transmigrating actions of quarks, because of the chirality principle of dissymmetry. However, it is the axiomatic change caused by the dissymmetry principle which is important to properly focus on, here, if we are to begin to understand the fundamental characteristic of non-living, living, and thinking processes. It is the chirality of the action which represents the difference between the living and the non-living that is important to identify, and to which the spiral is merely a

footprint. *It is the doubly-connected chirality of spiral action which reflects the principle of all living and thinking action, not the spiral.*

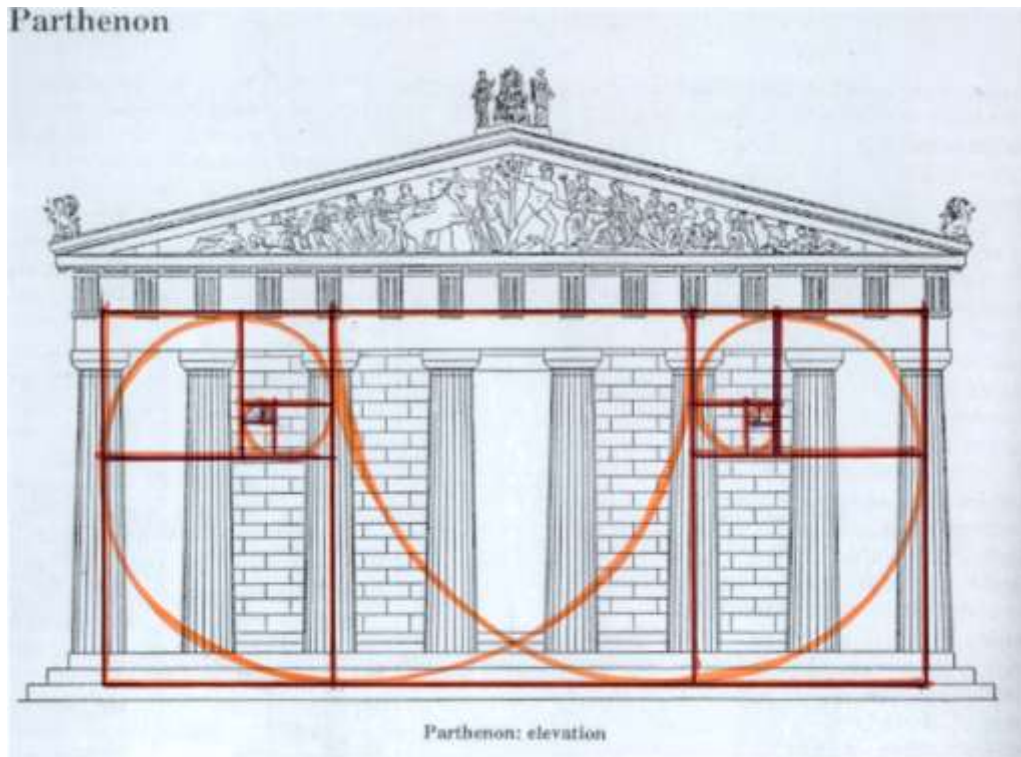


Figure 8. The golden section of the Parthenon reflecting the right and left spirals of the Nautilus shell.

Similarly, as Pasteur noted, such spiral actions as expressed in electromagnetic currents, whether they are moving in a right-handed or left handed direction, all display dissymmetry as the characteristic principle of the creative process of life, because dissymmetry is the reason why life constantly changes and improves. As Pasteur put it: “Life is dominated by dissymmetrical actions. I can even foresee that all living species are primordially, in their structure, in their external form, functions of cosmic dissymmetry.” (René Vallery-Radot, *The Life of Pasteur*, The Sun Dial Press, New York, 1937, p. 72.) And, in a letter to his chemistry student, Jules Raulin, Pasteur clarified the directions of research that Raulin should be taking:

“I have begun here some experiments in crystallization which will open a great prospect if they should lead to positive results. You know that I believe that there is a cosmic dissymmetric influence which presides constantly and naturally over the molecular organization of principles immediately essential to life; and that, in consequence of this, the species of the three kingdoms, by their structure, by their form, by the disposition of their tissues, have a definite relation to the movements of the universe. For many of those species, if not for all, the sun is the *primum movens* of nutrition; but I believe in another influence which could affect the whole organization,

for it would be the cause of the molecular dissymmetry proper to the chemical components of life. I want to be able by experiment to grasp a few indications as to the nature of this great cosmic dissymmetrical influence. It must, it may be electricity, magnetism.... And, as one should always proceed from the simple to the complex, I am now trying to crystallize double racemate of soda and ammonia under the influence of a spiral solenoid.” (Quoted by René Vallery-Radot, *Op. Cit.*, p. 198.)

4. THINKING PROCESSES ARE NOT TICKING PROCESSES

Consider that even gravity is an expression of life in the universe as a whole. For example, gravity is one of the reasons why vines, trees and bones grow by spiraling action. However, it is wrong to think, like many authors have, that spiral action is also a characteristic of inorganic or lifeless forms. Lifeless forms do not grow. Mountains don't grow, they are pushed upward. Non-living crystals, for example, are symmetrical; they do not display the characteristic dissymmetry of living chirality. Non-living processes are like mathematical formulas, they cannot grow and they cannot move otherwise than by piling up in a symmetrical form of no-change.

In other words, think of such dissymmetry as a higher dimensionality, and add to it the self-conscious dimensionality of the living human mind. What happens when you do that? You are looking at the three dimensionalities of the universe in one glance, and in a way that has never been done before in the history of mankind. You do as Vernadsky did; you look at the universe as a whole from the Noosphere down to the Biosphere, and from the Biosphere down to the Lithosphere, in that order, and not the other way around.

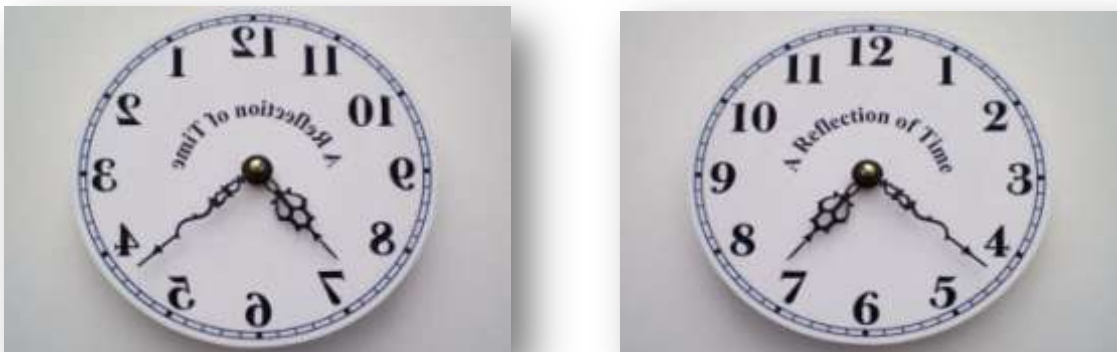


Figure 9. Metaphor of a clock reflective inversion in a mirror.

Let me give you an example of this process with the mirror image metaphor of a clock and pay attention to what clockwise and counterclockwise really mean. (**Figure 9**) Consider that for living and thinking processes, the motion of time takes place in a self-reflective manner that cannot be perceived by

the senses as clock-time, but must come from the future properly understood as an inversion of time. Similarly, both living and mental processes are generated from time reversal; that is, from the top down and in a dissymmetric enfolding manner. Ideas interact in your mind without interfering with each other in the same way. They are inseparable yet, they are dissymmetrical; they are in a force free periphractic region of the mind.

The simple spatial reflexion of the two clocks is not a true representation of time reversal, because clockwise time and counterclockwise time are the same mechanical clock-time. Time reversal is not a clock-time concept because it involves a different kind of dissymmetry. In **Figure 9**, the left clock rotates to the left and the right clock rotates to the right. For the same reason, a right hand reflected in a mirror gives the image of a left hand. And for that reason, the two images cannot be mapped one onto the other: they are spatially dissymmetrical, but temporally the same. There is no possible curve fitting between the two, yet one cannot live without the other, because their incompatibility can only exist with their complementarity. The point is that the reality of time reversal is always doubly-connected in a similar fashion. If you only had one side, the universe could not exist. And if the two sides were symmetrical, the universe could not exist either. Now, hold on to this idea as if your life depended on it, because it does.

The clock on the right rotates clockwise because you are accustomed to see the hand rotate from left to right, and that is so, because you infer that the Earth rotates clockwise from the left to right every twenty four hours. From that standpoint, the clockwise motion of the clock is nothing but an angular motion of the clockwise rotation of the planet. Are there planets that rotate counterclockwise? Why do Venus and Uranus rotate counterclockwise?

On the other hand, a left-handed person could even make the case that the left clock is definitely moving “clockwise” in his view: that is, if you were to look at the motion of the Earth down from above the North Pole. Don’t forget that the Earth is rotating clockwise only because you are considering its motion from the bottom up, that is, from the South Pole. So, you see, the clock is only anticlockwise if you consider the right clock to be the one that is marking real clock-time. But, is that true? Doesn’t reality require the two of them to be in opposition to each other? And besides, how do we know that North is up and South is down? What if the South Pole were really up and the North Pole down?

Finally, here is the problem I want you to consider. What would happen if both clocks were merely the reflections of each other and that reality were to be neither of them, because neither of them reflects a real knowledge of time? The point I am trying to get at is what if the real world were only intelligible as a metaphor of both itself and the changing inferential knowledge that you have of it?

5. REFLECTIONS ON THE DISSYMMETRY OF THE MIRROR

Mirror, mirror on the wall, who’s the most dissymmetric of all? Do mirrors always tell the truth? They do because they always replicate exactly what they reflect. However, we often forget that mirrors also play tricks on us, because their images are not always showing what we think they represent. For

example, the mirror images of spheres or of Platonic solids are symmetrical, because the objects and their images can be superimposed on each other. In other words, you cannot tell the difference between the original object and its reflected image. However, mirror images of spirals, like the left handed double spiral staircase of the Chateau of Chambord is dissymmetrical because its mirror image will be a right-handed spiral, and, therefore, its image cannot be superimposed over the left-handed one. Similarly, a left hand glove cannot be worn on a right hand.

This is the sort of phenomenon that arrested the attention of Pasteur very early on in his observations of tartrate crystals, and to such a degree that he thought the molecular dissymmetry of the wine crystals he had discovered might be a crucial index for determining a fundamental difference between living and non living matter. He was right. *The true question was not what the curvature of life is, but what is the curvature of change between life and non-life? What is the nature of that inversion?*

Pasteur was in the process of finishing his doctoral studies when he began to consider the principle of dissymmetry in living processes. He was dissuaded from pursuing experimental research on the relationship between electromagnetism and living processes by a close friend of the family and an associate of Ampère, Jean Baptiste Biot, who wrote to Pasteur: “I should like to be able to turn you from the attempts you wish to make on the influence of magnetism on vegetation.” Biot feared that Pasteur would be wasting too much money and time in uncertain areas.

As Radot reported of Pasteur: “He himself, after using powerful magnets to attempt to introduce a manifestation of dissymmetry into the forms of crystals, had had a strong clockwork movement constructed, the object of which was to keep a plant in continual rotary motion, first in one direction then in another. He also proposed to try to keep a plant alive, from its germination under the influence of solar rays reversed by means of a mirror directed by a heliostat.” (Radot, Ibidem., p. 73.)



Figure1
0-A. Leonardo Da Vinci, mirror image drawing of Amboise. 1518. From this frontal view, the large round tower next to the castle with the pointed roof is on the right and has been inverted from the left side of the castle.



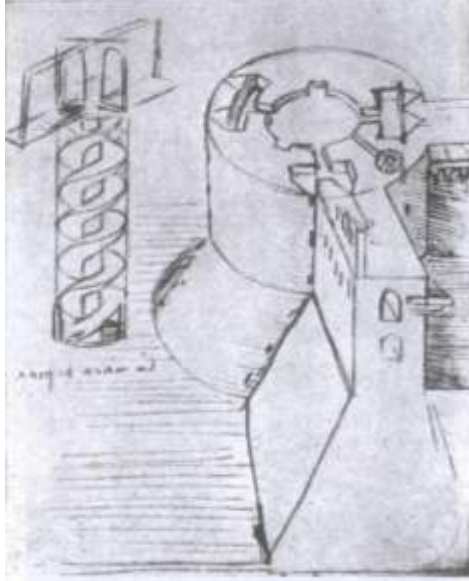
Figure 10-B. Recent photo of Amboise. The large round tower with a circular roof next to the castle is actually located on the left-side of the castle.

Now, look at the Leonardo sketch of the town of Amboise. (**Figure 10-A.**) This sketch is an inversion of the panorama viewed from across the River in **Figure 10-B.** It is as if Leonardo had made his drawing in a mirror from the other side of the Loire River and by turning his back to the scene. The red chalk drawing is composed from right to left just like much of Leonardo's left handwriting notes. Why would Leonardo do such an experiment? What was going on in his mind? The drawing was probably done as a mental exercise without a mirror as if he were drawing something coming from the future.

Pay attention to how things come back at you inverted from the future, as if from a mirror image. What happens? The image must come back changed and in reversed order. Things must be inverted as if transformed from the outside-in, as the reflection of directed energy flux-density from the future to the past, and from the top down. What comes from the future always comes with more energy and power than what comes from the past. Here, the conception of reality must change through the natural dissymmetry of the mirror. But that is merely a perception, the shadow of a mental process that is difficult to express. But, that is not how the real world works, and that is not merely a trick of sense perception either. As an ambidextrous artist, although mostly left-handed, Leonardo was a master of dissymmetry looking at both sides of his mind constantly, forward and backward.

This drawing was conceived to bring the attention to that dissymmetrical dimensionality of reality that people rarely pay attention to. What Leonardo is trying to tell us is that what we perceive, every day, is not the real world. When we look at the Chateau of Amboise from the other side of the Loire River we get to see only one side of the world; that is, the view from the past. However, when we look at the same scene by turning our backs to it, or reproducing the scene as if from a mirror, we are looking at something that is coming from the future. That is the whole point of Leonardo's experiment. Turn yourself toward

the future and discover how that changes your view of the present. That relationship between future and past is precisely the residence of that dissymmetry of change



A. Leonardo da Vinci



B. Château of Chambord

Figure 11 A – B. A. Leonardo da Vinci drawing of a double right-handed helix staircase located inside of a medieval tower. **B.** The double left-handed helix staircase in the center of the Chateau of Chambord was inspired from Leonardo Da Vinci. Thus, the space becomes periphractic by including two directions that don't meet each other.

From the standpoint of architecture, what is significant about these two double staircases is that persons going up one will never meet persons going down the other. Leonardo conceived of such double helix staircases in the case where a Prince wished to keep native troops and mercenary troops in the same tower, but in separate living quarters where the soldiers could descend and ascend to their quarters without mixing. Francois Premier like the idea and applied it to the architecture of Chambord in order to play the game of hide and seek with his court. From the standpoint of epistemology, however, the concept represents the periphractic region of a mental process in which two opposite streaming actions can take place without interfering with one another. As I will show below, Riemann understood that similar multiply-connected processes existed in the form of electrical streaming in electrodynamics. Matter and antimatter should be investigated from a similar standpoint.

With the experiment of Amboise and the idea of double-helix spiral construction, Leonardo brings our attention to a facet of the universe that most of us have never paid attention to before, yet which is very real. Dissymmetry gives us a more complete image of reality in which, as you not only

know the world, but you know the world as you are also known, that is, as changed. Those are the two sides of real knowledge, to know and to be known. You cannot really know anything without also knowing how you know it. And you cannot know it without knowing how others know it either. You cannot really have one without the other, and one is never the same as the other, because one is an improvement on the other. This is the proof that there is no symmetry in a changing universe. ***In this complex action of acquiring a truer scientific knowledge of the world, you don't only acquire knowledge of the world, but you also get to change the world by changing the knowledge you have of your actions on the world.*** And we require both sides of that knowledge, because this is how the real world works. Now, this is the self-reflexive dimension of dissymmetry of the creative process of the universe that most people will tend to ignore during their lifetime.

In his [*Cosmology of Life and Mind*](#), American biologist, George Wald, considered that mind expressed such streaming relationships inside of the galaxy. He posed two central questions which have a direct bearing on this report and which don't interfere with one another. The cosmos of life and mind is periphractic in character, because the space inside of it includes different regions that may be moving in opposite directions. The first was on the question of dissymmetry, and the second was on the location of mind in the universe. Although he makes the mistake of starting from the bottom up with the fallacy of elementary particles, he posed the right questions from the top down:

“Why do we have a universe of matter at all? In 1952, I was giving the Vanuxem Lectures at Princeton University on the origins of life and biochemical evolution. Albert Einstein, whom I had come to know, was walking with me before the first lecture and asked, “Why do you think the natural amino acids are all left-handed?” As you know, all amino acids except the simplest, glycine exist in two geometries that are mirror images of each other-like right and left hands. However, all the ***natural*** amino acids happen to be left-handed. Einstein went on to say, “I have wondered for years how the electron came out to be negative. Negative and positive are perfectly symmetrical principles in physics, so why is the electron negative? All I could think of was: the negative electron won in the fight.” I said, “That is exactly what I think of those left-handed amino acids they won in the fight.” But he was talking about a different fight – the fight between matter and antimatter.” (George Wald, [*Cosmology of Life and Mind*](#), p.3)

This fascinating anecdote is all the more revealing since Einstein never believed in the Big Bang Theory or in the mutual annihilation business of matter and antimatter. Both were encompassed within the periphractic region of galaxies. However, in order to make believe the Big Bang Theory held water and remained credible, some correction had to be introduced. As a matter of fact, if the universe were symmetrical, this meant that during the Big Bang event, God required equal amounts of matter and antimatter; otherwise the universe would have been made up of only energy. So, how did Einstein explain the existence of all of this matter that is all around us? Tongue in cheek, Wald attempted to explain away the fallaciously assumed beginning of the universe by adding:

“One now realizes there are roughly a billion times as many photons of that residual radiation moving around in the universe as there are particles with mass. So we have to modify our neat idea to include a little discrepancy, a little mistake if you will: for every billion parts of antimatter involved in the big bang there were one billion and one parts of matter. Thus, when the fire storm of mutual annihilation had exhausted itself, one part in one billion of matter was left

over. This residue constitutes the matter of our universe, that is, the galaxies and stars and planets and us.” (Ibidem P.3)

This was Einstein’s ironical roundabout way of introducing the fundamental necessity of dissymmetry in the universe, but, it was also just enough to demonstrate the fallacy of composition behind the false underlying assumptions of matter and antimatter with the Jesuitical concoction of the Big Bang Theory. In the same short paper, and almost in the same breath, Wald made the following amazing point on the matter of mind. He wrote:

“Our living universe is a very peculiar universe in that the more one knows of its physics, the more one sees how finely balanced and intricately meshed it is – as if it were *intended* to breed life. The fact that so many barriers and problems are solved so precisely seems pretty strange. Of course, from our self-centered point of view, these particular solutions represent the best way to make a universe. But what I want to know is how did the universe find that out? Which brings me to my next problem, that of consciousness.” (George Wald, [*Cosmology of Life and Mind*](#), , p. 7)

The most interesting question that Wald posed was about the place of this “intention.” Where is the location of mind or consciousness in us and in the universe? After demonstrating that the brain was not the seat of consciousness, he told this second astonishing story that streamed in opposite direction to the first:

“I was once talking to Bohr, when, to my amazement, he told a story about the love life of eels, which I think may help illustrate what I am now trying to say. Bohr's father, Christian Bohr, was a very fine physiologist, and Bohr had a great interest in biology. There are certain so-called freshwater eels that grow in fresh water for five to fifteen years but, on reaching sexual maturity, leave and migrate into the ocean. At this point they will never eat again. At best they are excellent food for us, since they are all good muscle. There are two species in the Atlantic that come, respectively, from the European and the American shores, but both migrate to overlapping areas in the South Atlantic close to Bermuda. This region is the deepest and saltiest part of the ocean, and it is where the eels spawn at great depths and die. All of them die, but the larval eels make their way back alone to their freshwater homes. It takes the American eels about fifteen months to reach our shores and come up the rivers. It takes the European eels *three years* to get back home, but there is as yet no record of a baby eel ever getting balled up and coming to the wrong continent. Bohr told all this and then said a wonderful thing: "It is just because they do not know where they are going that they always do it perfectly." ” (George Wald, [*Cosmology of Life and Mind*](#), , p. 9)

In other words, they don’t know where they are going, but they know how to get there. That is invariably the mark of the presence of mind in the activity of these eels. To further confirm this, and surfing on the enthusiasm of the eel story, Wald added the simple example of the wave and particle paradox: “Any physicist setting up an experiment on radiation, or elementary particles for that matter, must decide beforehand which set of properties – particle or wave – they intend to find. If a wave experiment is set up, they get a wave answer. If a particle experiment is set up, they get a particle answer. One cannot get both answers in one experiment.” (Ibidem, p. 10) Indeed, Wald was so baffled by this

cheminement that, in the end, he had to conclude with a question that only God could answer: “If mind was there all the time, why would it take the trouble to make matter?”

6. THE DISSYMMETRICAL FUNCTION OF CLASSICAL MUSIC IN PHYSICAL SCIENCE

“Now you know why Einstein’s violin is not simply a living instrument. It is also a universal mental instrument, because classical music is the epistemological representation of the universe.”

Dehors Debonneheure

One more time, this past week, Lyn defined what the principle of classical musical composition is with respect to the physical universe as a whole, and what its relationship to physical science must represent for mankind more generally. This is also what Matthew Ogden has properly demonstrated as the [Furtwängler Principle](#). Matt expressed the crucial character of the dissymmetrical principle of music in the following manner:

“Now, just to state directly, what the implication of Furtwängler’s discovery is, before exploring a little bit more in detail, what Furtwängler’s secret was, ontologically, if the mind can experience something other, something which is independent, and comes prior to sensation as such, then, that means that the mind is not contingent upon sense experience. It’s not an aggregate, the summation of all of its sense experience, prior to that moment. Rather, the sensory experience, itself, which comes from a lower chemical, or physical domain, the sense experience itself becomes subordinated to, and contingent upon the more necessary substance of the mind. And not only does this turn the reductionism of the entire way that we’re told to view the human mind today, on its head, and invert it, turning it completely inside-out, but it also allows us to invert the entire bottom-up ordering of the universe, to establish what’s actually a clear, top-down hierarchy, ontological hierarchy of a creative universe as such.” (Matthew Ogden, [Furtwängler Principle](#). LPAC Weekly report, May 23, 2012.)

This defines quite nicely, not only how Plato’s Ontological Paradox established the primacy of mind as a principle of the universe, as exemplified by classical music, but also that classical music is the most effective representation of that epistemological principle in the universe. In other words, I would add to Matt’s view the additional fact that music expresses the lawful ordering of the universe in a unique Lydian form which, as in the creative notion of the Christian Trinity, the power of dissymmetrical change functions as a triply-connected toroidal manifold. I refer here to the illustrations I gave in my earlier report on [Lydian Singularities of Galactic Thinking](#). (Figure 12.)

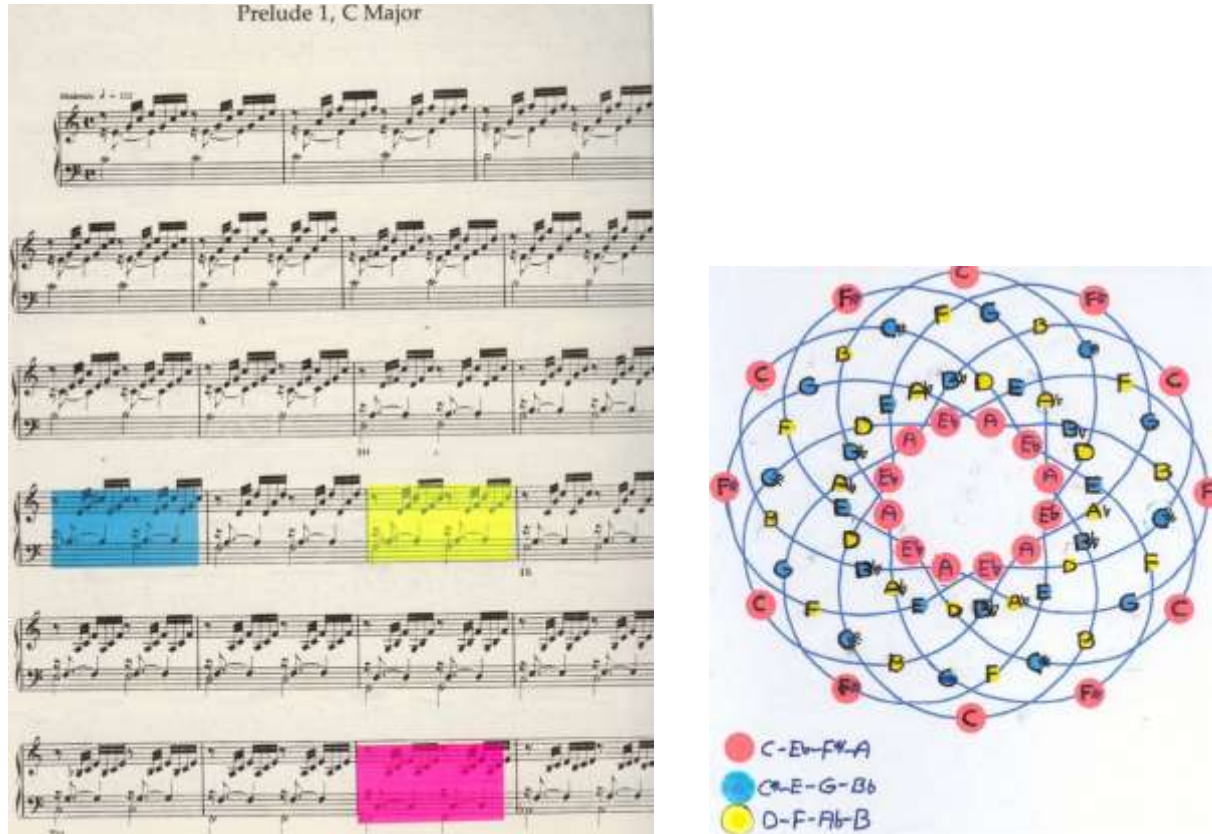


Figure 12. The Lydian divisions of J. S. Bach's *Prelude I, in C Major* and their electromagnetic projection inside of a Lydian Torus. Note the chirality of the Lydian system of three intervals of three half-tones, each from which all 24 keys can be generated. The Torus has a P/T ratio of 7/12.

The harmony defining the universe is reflected in the dynamics of this electro-magnetic field concept which can best be experienced and understood through the musical application of this Lydian principle of classical music to human emotions. One of the most dramatic demonstrations of this principle of musical chirality, as referenced many times by Lyn, is the creative development of the *Ricercare motivführung* of John Sebastian Bach's *Musical Offering* and Joseph Hayden's *Opus 33* string quartets. In his 1992 paper on Mozart, Lyn gave us the following extraordinary insight into the matter:

"This revolution of 1781-1786 combines three distinct revolutions into one. Each of these three is defined as a "revolution" in its own right, in the same sense we attribute that quality to a valid discovery of principle in physical science.⁴ Taken in order of their impact upon Wolfgang Amadeus Mozart, these three revolutions are as follows. The first in this sequence, is Haydn's discovery of his *Motivführung* principle of composition, as this is represented by his 1781, *Opus 33* string quartets.⁵ The second, is Johann Sebastian Bach's 1747 *Musical Offering*.⁶ The third, is Mozart's insight into the integration of these two preceding discoveries by Haydn and Bach. Mozart's discovery is represented

immediately by a series of his compositions from the 1782-1786 interval. Among the most notable of these latter, are his six "Haydn" string quartets (K. 387, 421, 428, 458, 464, 465), his C-minor Mass (K. 427), his keyboard fantasy-sonata K. 475/457, and his celebrated keyboard concerti in D-minor (K. 466) and C-minor (K. 491)." (Lyndon LaRouche, [Mozart's 1782-86 Revolution in Music](#), *FIDELIO Magazine*, Vol. 1, No. 4, Winter 1992.)

Mozart's discovery reflects the creative process of a triply-connected Riemannian manifold in application to physics. In choosing this subject of musical transformation, Lyn was not merely identifying the higher musical principle of the *Mozart Bel Canto Motivführung* revolution inside of the polyphonic medium of singing performance as expressed through the six human voices, but, he was also demonstrating how they were suitably adapted to musical instruments as the key to an orchestral revolution. Furthermore, Lyn made the point of a new Platonic epistemological revolution to be adopted in economics, because the roots of this *Motivführung* were already apparent to him as a function of the universal creative process of our galaxy. As Lyn noted a few pages later:

"In the real universe, as reality may be distinguished from mere formalities, the test of the validity of the series, *A, B, C, D, E, ...*, is posed by the question, whether the successive changes in modes of society's productive (and, related) behavior, effects resulting from employment of changes in scientific knowledge, do, or do not represent implicitly an increase of the rate of growth of society's potential population-density. In the case that this test is satisfied, the series as a whole represents (and is represented by) a *subsuming method* of generating revolutionary successions of advance in scientific and technological progress." (Lyndon LaRouche, [Mozart's 1782-86 Revolution in Music](#))

This is the universal character of change that classical music generates in the universe, most emphatically, with the full epistemological significance of its time reversal galactic implications. From the standpoint of a higher epistemological domain, what this Mozart revolution accomplished was a complete revolution in physical science, most emphatically in the new revolutionary science that Ampère later discovered and identified as electrodynamics. Consider the point that Lyn made in the same paper on the subject of electrodynamics and you will understand what has to be done.

If I may be permitted to interject within Lyn's own report, I will show how Lyn defined the appropriate periphractic region of interaction between classical artistic composition and toroidal electromagnetism. He explained the general process of axiomatic change as follows:

"As a matter of first approximation, any given level of development of a faction of scientific practice may be described in terms of a consistent, open-ended series of theorems, a set of theorems each and all derivable, formally, from a single, common, integral set of interdependent axioms and postulates. All "crucial" or "fundamental" scientific progress is expressed in formal terms as a radical change in the integral set of such axioms and postulates, underlying the relevant set of mutually consistent theorems."

This axiomatic requirement, within the domain of science, reflects the method of axiomatic change that Mozart had discovered in Hayden's discovery of the *Motivführung principle* of composition

of the string quartets, and the result was a hundred years of musical progress from Hayden to Brahms. Such a revolution was successful because composers such as Mozart, Beethoven, Schumann, Shubert, the Mendelssohns, Chopin and Brahms recognized the necessity of the same axiomatic requirement within their own works, and they developed the same *Motivführung principle* in their respective compositions. The overriding idea was to replicate the living process requirements of polyphony of the living human voice with dead instruments, and in so doing, establish an epistemological bridge between the domains of the living and the non-living in the universe. This is also precisely what needed to be done in the connections between the three scientific bodies of gravity, electricity, and magnetism, and apply it to the unique discovery that Ampère had made with his electromagnetic solenoid. But, as Lyn emphasized: then came the fallacy of the British operation that warped the orbit of the new discover of principle away from the living inferential mentation that had been given by Ampère. Lyn continued:

“For example, given an anomalous experimental result (or, analogous observation), attempt to construct a theorem which describes this result from the standpoint of any choice among existing, generally accepted, consistent bodies of *formal* scientific knowledge. For example, repeat the famous, crucial solenoid experiment of Ampère; attempt to define a theorem for all of the significant features of this experimental result, constructing a theorem which is formally consistent with the doctrine of James Clerk Maxwell; it cannot be done!¹⁹ It could be done only if a radical change is imposed upon the axiomatic assumptions commonly underlying the dogmas of Clausius, Kelvin, Helmholtz, Grassmann, and Maxwell.²⁰ In such as the latter case, in which a fair theorem representation for a crucial experiment requires a radical revision of axiomatics, we have an example of the form of a threatened revolution in scientific knowledge.

“Consider a simplified, symbolic classroom representation of this point.²¹

“Given, a formal system of theorem-point scientific knowledge: an open-ended series of mutually consistent theorems, each and all consistent with an underlying set of intradependent axioms and postulates. Call this a "theorem-lattice." Begin with such a theorem-lattice, *A*. Introduce a crucial, real-life experiment, X_1 , for whose result no theorem may be constructed which is consistent with *A*.

“Now, there exists at least one radical revision of *A*'s underlying set of axioms and postulates, which permits the construction of a formally consistent theorem for X_1 ; there may exist many such revisions which satisfy this bare condition. However, we must satisfy not only the evidence of X_1 ; we must also satisfy every crucial experiment which corresponds to the subject of any other theorem of *A*. This restricts the choices of radical revision for *A*'s axiom-set. In the case this condition is met, we have a new theorem-lattice, *B*.

“Thus, in similar fashion, define a series of mutually inconsistent theorem-lattices, *A, B, C, D, E, ...* Since each theorem-lattice is separated from its predecessor by a radical change in the implicitly underlying set of interdependent axioms and postulates, no two lattices are consistent, and no theorem of one lattice is consistent with any

theorem of any other lattice. This is a higher expression of what is termed a "mathematical discontinuity"; in this case, a formally unbridgeable chasm separating each term of the series from every other term of the series.

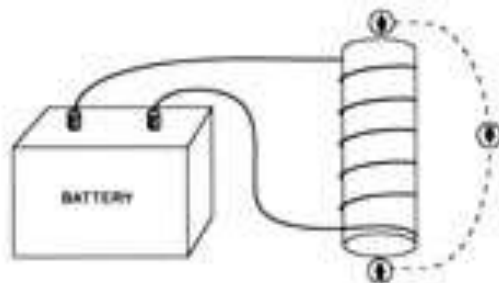
“In the real universe, as reality may be distinguished from mere formalities, the test of the validity of the series, A, B, C, D, E, \dots , is posed by the question, whether the successive changes in modes of society's productive (and, related) behavior, effects resulting from employment of changes in scientific knowledge, do, or do not represent implicitly an increase of the rate of growth of society's potential population-density. In the case that this test is satisfied, the series as a whole represents (and is represented by) a *subsuming method* of generating revolutionary successions of advance in scientific and technological progress.” (Lyndon LaRouche, [Mozart's 1782-86 Revolution in Music](#))

The reason why the Maxwell “laws” of electromagnetism do not apply to the richness of potential exhibited in the Ampère solenoid experiment is because the creative spark of the thinking process was replaced by a willful attempt to impose on electromagnetism a curve fitting similarity based on the mathematical axiomatics of sense perception. That is the fundamental fallacy of composition of British reductionist and positive knowledge, more generally, and of both Faraday and Maxwell, as I have reported in my previous report on [HOW GOD FIRST CREATED MIND FROM TIME REVERSAL](#).

In his three footnotes 19, 20, and 21 quoted below, Lyn gives us the full scope of the correction of that British fallacy of composition represented by Faraday and Maxwell against Ampère and Weber. Again, I reproduce the entirety of those notes as follows in order to not dilute the crucial aspect of this matter of mind:

“19. The topological aspect of the electromagnetic phenomenon is already evident in the simple solenoid experiment of Ampère's early researches: A.M. Ampère, *Théorie mathématique des phénomènes électro-dynamiques uniquement déduite de l'expérience* (Paris: Blanchard, 1958).

“In the simple apparatus illustrated, the magnetic compass needle will be seen to rotate 360° in a 180° turn of the compass around the electrified solenoid, suggesting a multiply connected topology of action.



“Bernhard Riemann's investigations of toroidal and higher-genus topologies in connection with electrical "streamings" is reported in Felix Klein, *On Riemann's Theory of*

Algebraic Functions and Their Integrals, trans. by Frances Hardcastle (Cambridge: MacMillan and Bowes, 1893).

“James Clerk Maxwell insisted that such topological features could be ignored for purposes of analysis, and that the higher-genus ("periphractic") regions of space could be reduced to simple connectedness by cuts ("diaphragms"): J.C. Maxwell, *A Treatise on Electricity and Magnetism* (New York: Dover, 1954), §18-22, 481.

“A devastating refutation of the entire theory of elasticity upon which the Maxwell electromagnetic theory was based, was given by Eugenio Beltrami in "*Sull' equazioni generali dell' elasticità*" ("On the General Equations of Elasticity"), *Annali di Matematica pura ed applicata*, serie II, tomo X (1880-82), pp. 188-211; trans. by Richard Sanders, *21st Century Science & Technology*, unpublished.

“20. The mathematician Hermann Grassmann constructed the putative mathematical proof for the Rupert Clausius/Lord Kelvin concoction known as the "Second Law of Thermodynamics," and was also employed by Clausius to concoct an incompetent criticism of Bernhard Riemann's work on electrodynamics.

“In an 1858 paper, *A Contribution to Electrodynamics*, Riemann asserted the coherence of the theory of electricity and magnetism with that of light and radiant heat, proposing that the electrodynamic effects are not instantaneous, but are propagated with constant velocity equal to the velocity of light. The paper was published posthumously and then criticized by Clausius, who objected to the appearance of an integral expressing the value of the potential, which he interpreted as capable of taking on an infinitesimally small value.

“A related criticism was made by Helmholtz against the work of Riemann's collaborator, Wilhelm Weber, the recognized leader in fundamental electrodynamic research. Helmholtz made the irresponsible charge that Weber's Law of Electrical Force contradicted the Law of Conservation of Force, by allowing two attracting charged particles to theoretically achieve an infinite *vis viva* (energy).

“Weber answered the criticism in his *Sixth Memoir on Electrodynamic Measurements*, trans. in *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science*, Vol. XLIII—Fourth Series, January-June 1872, pps. 1-20, 119-145. He pointed out that the objection was valid only if the charged particles were allowed an infinite velocity. Thus, Weber deduced that there must be a finite limiting velocity for two electrical particles, such that its square may not exceed c^2 . Although Maxwell later renounced Helmholtz's attack in an edition of the *Treatise on Electricity and Magnetism*, the criticism is still found to this day.

“An English translation of Riemann's essay, accompanied by a sympathetic summary of Clausius' criticism by the German editor Heinrich Weber, is available in two locations: *International Journal of Fusion Energy*, Vol. 3, No. 1, January 1985, pp. 91-93; and also in Carol White, *Energy Potential* (New York: Campaigner Publications, 1977), pp. 295-300.

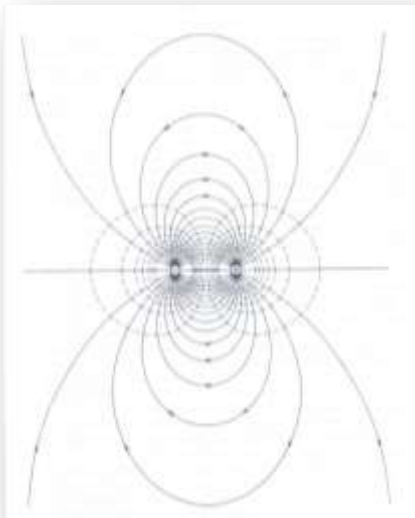
“21. Lyndon H. LaRouche, Jr., "In Defense of Common Sense," in *The Science of Christian Economy and Other Prison Writings* (Washington, D.C.: Schiller Institute, 1991), pp. 8-41.” (Lyndon LaRouche, [Mozart's 1782-86 Revolution in Music](#))

Even a cursory reading of Ampère's Electrodynamic report, makes explicit two things of immense significance for this report. One is the fact that the multiply-connected topology of electrodynamic action is implicitly modeled on a Riemannian toroidal or higher genus types of manifold, and the other is the fact that Ampère called for the discovery of a universal principle that reflected the integration of periphractic regions of the human mind; that is to say, of a region that bounds, epistemologically, several other closed regions of knowledge, as a One would bound different sets of a Many, in the epistemological manner in which Matt described it in his [Furtwängler Principle](#).

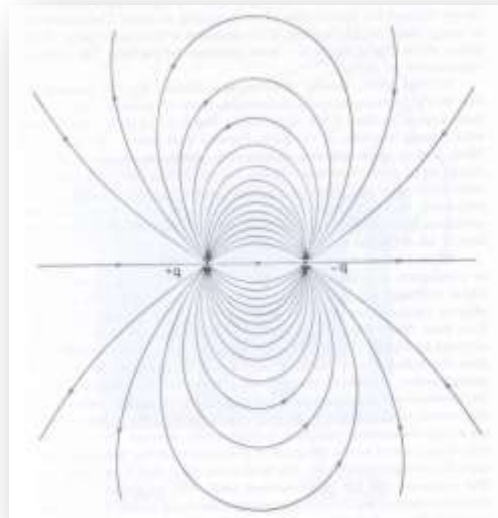
In other words, it is through a similar periphractic dimensionality of doubly-connected toroidal action that both classical music and electrodynamics can be integrated into the same manifold as the one of electromagnetism. However, those integrated regions cannot justify their respective actions independently, as if they were completely separate domains. No single domain of knowledge is an island onto itself, even when it may be studied separately. It is the higher dimensionality of the periphractic region, the One as a whole, which determines the directionality of the other two or three sub-actions of the manifold. This may also have something to do with Ampère's *principle of reciprocity* between two conducting wires, as he proposed it from a higher unity of epistemological effect between electrodynamics and electromagnetism. There is, indeed, a fundamental difference between the two that British electrodynamics ignored. Eliminate the need for poles and all you are left with is the analysis situs of currents. That is all. This is how Ampère solved the problem by formulating it as a true electrodynamic question:

“As soon as Mr. Oersted had discovered the force which the conducting wire exerted on the magnet, one could in fact suspect that a reciprocal action might exist between two conducting wires. But this was not a necessary consequence of that famous physicist's discovery: for a soft iron bar also acts upon a magnetic needle, without, however, any reciprocal action occurring between two soft iron bars. As long as one knew simply the fact of the deflection of the magnetic needle by the conducting wire, could one not assume, that the electrical current simply imparted to this conducting wire the property of being influenced by the magnetic needle, in a way similar to that in which the soft iron was influenced by the same needle, for which it sufficed that it [the wire] acted on the needle, without any sort of effect resulting thereby between two conducting wires, if they were withdrawn from the influence of magnetic bodies? Simple experimentation could answer the question: I carried it out in September 1820, and the reciprocal action of the voltaic conductors was proven.” (A. M. Ampère, *Mémoire sur la théorie mathématique des phénomènes électrodynamiques uniquement déduite de l'expérience*. Mémoires de l'académie royale des sciences de l'institut de France, 1823. p. 285)

Thus, reciprocity is a shadow product of dissymmetry. The point to stress, here, is in the difference between Ampère and Weber, on the one hand, and Faraday and Maxwell, on the other. The difference is between conception and perception. The Ampère conception involves a doubly-connected Gauss-Riemann process of electrodynamic streaming (solid lines) between electrical currents and a gradient of equipotentials of the electrical charge (dotted lines) in the sphere, the Torus, or higher topological genus, as expressing higher increases of energy flux-density. In contrast, Faraday's and Maxwell's limited conception involves a mere singly-connected projection of sense perception of how flatland filings get distributed in the plane. They missed the higher dissymmetrical manifold.



Gauss



Faraday

Figure 13. In Gaussian and Riemannian electrodynamics, there is no empty space. Charged forces are doubly-connected and are represented by a field of dynamic transformations between electrical streaming lines (solid) and contrary equipotential lines (dotted) of the electromagnetic flow. In the Faraday fallacy of composition, followed by Maxwell, charged objects are merely represented by “force lines” following the apparent sense perception direction of a bar-magnet’s filings. (Carol White, *Energy Potential*, Campaigner Publications, New York, 1977, p. 70-71)

The point is that Faraday’s projection is wrong even as a plane projection, because it excludes the dynamics of equipotential lines generated through the periodical modulus. As Felix Klein put it in his class on Riemann: “A streaming is then set up in the xy plane with vortex-points at z_0 or z_1 (the positive and negative poles of a battery), but otherwise continuous, and from this, by integration, we obtain as velocity-potential a function whose value is increased by a certain modulus of periodicity for every circuit round z_0 or z_1 .” (The Project Gutenberg EBook of [On Riemann's Theory of Algebraic Functions and their Integrals, by Felix Klein](#) p. 17) In physical reality, a charge distribution must always be represented with equipotential lines perpendicular to field lines. All of the following illustrations are Riemannian representations of different electrical streaming forms with the modulus of periodicity. All **Figures 14 to 19**, taken from Klein’s class, reflect the principle of dissymmetrical chirality of Ampère electrodynamics

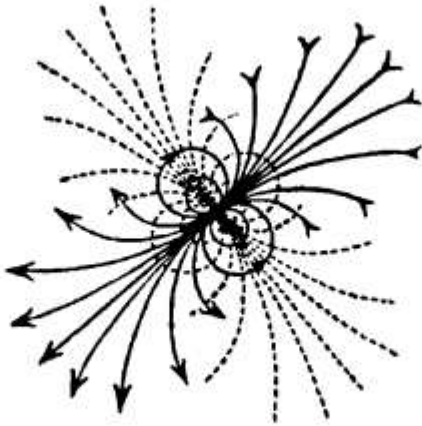


Figure 14.

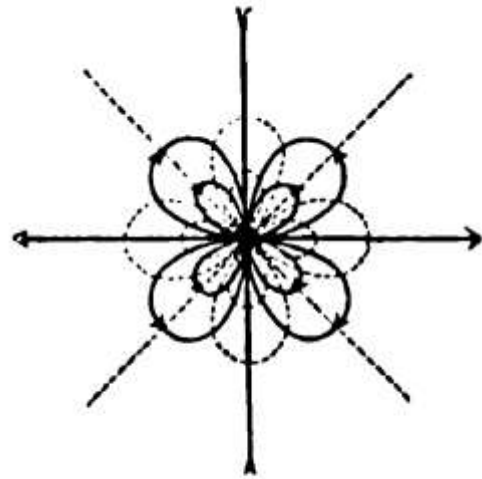


Figure 15.

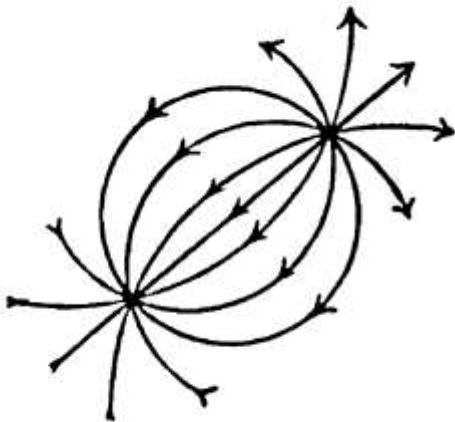


Figure 16.

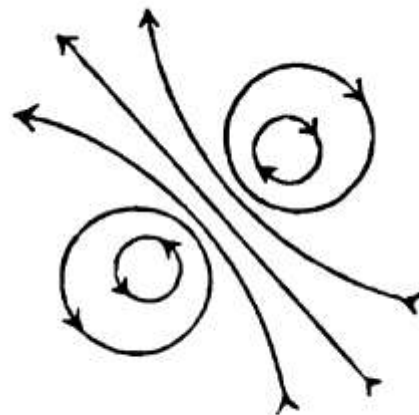


Figure 17.

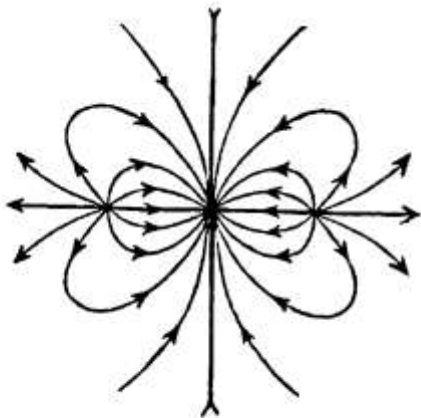


Figure 18.

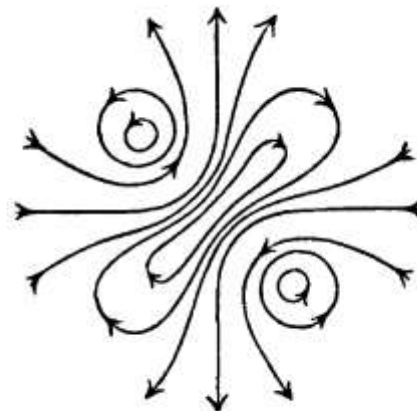


Figure 19.

Figure 14-19. A series of notable self-reflective motions of Riemannian electrical streaming flows. (Felix Klein) Note how all electrical flows express chirality in a manner similar to the six human singing voices.

The same process of dissymmetry is generated through the **Motivführung** principle of Mozart in a manner such that the three Lydian spiral actions generate all of the 24 key signatures in the manner that is indicated in **Figure 20**.

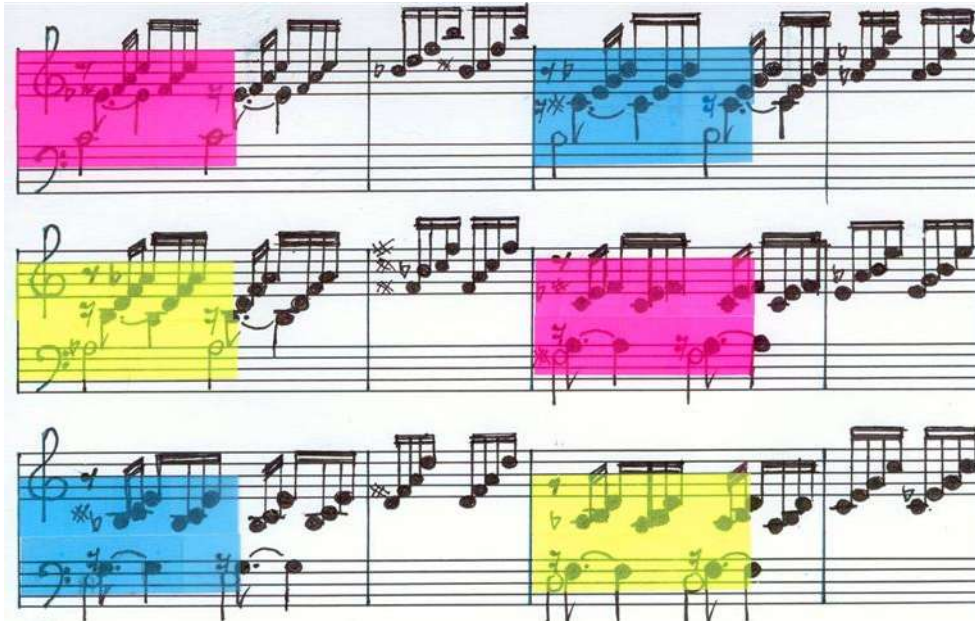


Figure 20. How Lydian spiral action generates key signatures following J. S. Bach's *First Prelude in C Major*.

Although I am not able to say more on the subject of music, at this time, the reader should look at Lyn's footnotes and their polemical content as the domain in which to import the Mozart revolution with this Riemannian sort of periphrastic ammunition in mind. The task is to apply the method of the Mozart Bel Canto **Motivführung principle** to the domain of electrodynamics as understood and developed by Ampère, Gauss, Weber, Beltrami, and Riemann.

Lyn's **Motivführung principle** is the discovery of how to generate a willful change deliberately anywhere in the triply-connected universe we live in, and the **Motivführung principle** is the pathway to do it. But, remember that the idea is not to calculate the results of experiments with new hypersensitive instruments, but to experiment the true principle of the composition from the vantage point of the **Furtwängler principle**. What Hayden and Mozart had discovered was the principle of axiomatic change within the polyphonic domain of the six human voices, and how to apply it to a system of counterpoint adapted to string and wind instruments, for the purpose of replicating in instrumental polyphony, the generative principle of change between the living and the non-living. That is the new dimensionality that must define the field of galactic electrodynamics. And you don't need a Stradivarius to do that. If a bad voice like mine can do it, so can yours.

However, the point is not to fall into the trap of curve fitting by attempting a mapping of one onto the other, mechanically, but to apply retrospectively the same Riemannian axiomatic change function that Bach, Hayden, and Mozart used in order to put an end to this Maxwell-Faraday plague in physical science, once and for all. This means that doubly-connected toroidal action should, minimally, become the topological metaphor required for classical musical composition and for galactic electrodynamic phenomena in general.

CONCLUSION

A classical artistic composition adjustment of the Ampère conception of electrodynamics to living processes will go a long way into assuring the right measure of change that is required in the current historical galactic axiomatic change in science. Apply the right pasteurization process at the right time and at the right place, and you will very rapidly discover how the beneficial effects for the future of humanity can effectively change the course of the universe as a whole. This is what Pasteur discovered by applying rotary power of electromagnetism to the crystalline forms of molecular dissymmetry.

Here, one more time, Leibniz is the key to go back to, from the future. But, if you have the Torus in mind, don't think of it as a formula, think of it as a process of change by inversion. The point of method to emphasize is that the galactic Poloidal/Toroidal pathway that you have entered into is open-ended and is never coming back to the same point. This is the reason why you never know where you are going to end up in the future. The only thing you do know for certain is that, when you return back home, the future ain't going to be what it used to be. Therefore, the most challenging aspect of this whole process is that by using the Leibniz method of [inversion of tangents](#), you will always know how to get to where you want to go, because you will always be using the least action pathway to get there.

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