THE LAROUCHE METHOD OF THE CREATIVE-MENTAL PROCESS, PART I

On the Function of Geometrical Anomalies in Epistemology

Pierre Beaudry, 10/29/2018

FOREWORD

This report is a thank you note to Lyndon LaRouche for making me discover how the creative process of the human mind works. The strange thing about this discovery, however, is that it is merely an experiment in discovering how to go on a *nowhere*.

When Lyn turned sixty five, in 1987, he expressed the same sentiment in a similar negative form, when he wrote:

> ***"It has become my opinion that if one knows only one thing about the universe as a whole, and if that one thing be true, such an ignorant person has the advantage of knowing nothing falsely. With this advantage, a person who nourishes his ignorance rightly is advantaged to know more about the universe than those ordinarily esteemed as the most learned."***[1]

[1] Lyndon LaRouche, **LYNDON LAROUCHE, THE 'STRONG HYPOTHESIS' OF BIOPHYSICS, 1987**.

INTRODUCTION

> ***"So, therefore, the question is, the relative power of mankind achieved by what? …anomalies."***
>
> Lyndon LaRouche, ***No Limits to Growth: Cantor's Concept of Infinity in Economic Science***, EIR, August 4, 1995 and October 12, 2018.

During the course of my life, I have been given the chance to have two different fathers who were very much alike in some respects: the first is my biological father, Gérard Beaudry, who taught me how to drive a car by going on what he called a *nowhere;* the second is my spiritual father, Lyndon LaRouche, who taught me how to use my mind by showing me how to look for and find *what is not there*. I am very thankful to both of them because now that I am older, I can go anywhere I wish to go, by car or with my mind, and never get lost.

From both of them, I have learned that no matter where I go, I can always find my way back, because the important thing I have learned from them is not to get to a destination, but to discover how to get there and back. I am especially thankful to Lyndon LaRouche for having given me the chance to discover that going on such a mental *nowhere* was the only way to live in the future, as opposed to in the past.

How do you live in the future, you ask? This is probably one of the most important questions to investigate during your lifetime, especially during the current axiomatic transformation of the whole planet, because the answer you find will be the most important inheritance that you can give to future generations; that is to say, discovering how to travel on the cusp of a changing negative curvature.

The present challenge is to discover how the creative human mind works by resolving anomalies; that is, by resolving paradoxes reflecting the Cusa paradox of

the *coincidence of opposites* by means of connecting the three main faculties of the human mind together, *memory*, *imagination*, and *consciousness* into one single whole. Those three mental functions are required in order to attain a proportional harmonic ordering of the creative-mental process. The three mains steps to be considered are the following:

> **The first is *memory*, which acts as a holistic connecting switchboard of the human mind instead of a storage container like your computer. *Memory* is the connecting function which relays all of the two-way communication calls between *consciousness* and *imagination*.**
>
> **The second is *imagination*, which acts as a rotating searchlight of the mind and which enables *consciousness* to pick, twist, and turn everything it is able to find to improve the future of mankind within the *memory* of all domains of knowledge.**
>
> **The third, is *conscience*, which is the moral command center guiding the *imagination* into connecting *memory* to legitimate connections and rejecting illegitimate ones. In that sense, *conscience* is judge, jury, and executioner of this whole process of knowledge.**

Such a triply-connected function of the human mind has been created in the image of God exclusively for the purpose of improving the future of mankind in congruence with the creative function of the *Filioque*. This purpose is the necessary precondition for all forms of creativity, otherwise the process will become corrupt and creativity will die.

1. STARTING FROM THE TRANSFINITE

Always start from the end, that is, from the transfinite, because if you start from anywhere else, you will never find the right pathway to where you have to go. When you start investigating knowledge, there is a very curious trap that the mind has to avoid in order to prevent it from getting lost on an ocean without a

shoreline; it is called the trap of a *bad infinity*. Either the mind is tempted to divide everything into a *bad infinity* as in the case of the Zeno Paradox or it is tempted to multiply everything into a *bad infinity*, like the attempt to compute the complexity of a single living cell. In both cases, the *bad infinity* is the alert signal which indicates to your mind that your memory and your imagination have not been able to come together to form the *gestalt* of an appropriate universal. So, when this happens, you are better off starting all over again.

It is unfortunate that such an epistemological disease should have infected so many minds throughout history, and that so many generations of people got lost no matter where they went. This debilitating condition is the reasons why Lyndon LaRouche spent most of his life attempting to bring a definite cure, in the form of a *definite infinity*, which he identified as a "transfinite collection." Lyn wrote:

> "In Euclidean geometry, or any similar geometry, we use two methods. One is the method of construction; the other is the method of so-called deductive or inductive proof. In that case, given a proposition, we submit the proposition to the principles of existing geometry. And we reject, as a proposition, at least as a theorem of that geometry, any proposition which is *inconsistent* with the existing body of so-called proven theorems.
>
> "Now, this implies, especially from a Socratic standpoint (and this, of course, is famously reflected in Euclid in part—not adequately, but in part), that what makes it possible to combine all theorems into a set of mutually consistent propositions, defines certain common or underlying assumptions in that geometry. These assumptions are called, classically, *axioms and postulates.* A *theorem-lattice* so defined is, in a formal sense, viewed as a collection of interdependent, that is, not inconsistent, axioms and postulates, none of which must be contradicted by any proposition which is accepted as a theorem. . . . To think about a geometry, we think not about a collection of theorems, we think of a theorem-lattice as a whole set of all possible propositions which might be consistent or not inconsistent with the underlying set of axioms and postulates.

"So, in order to understand a geometry, instead of looking at the theorems one by one, we now look at the *common principle* which is referenced, by comparing that set of axioms and postulates with the set of axioms and postulates of any different kind of geometry. So we go up two higher steps in thinking from the level of theorems and propositions, first of all, to understand all possible theorems as a whole, as a kind of transfinite collection, in terms of thinking about the set of axioms and postulates. In order to understand axioms and postulates, to criticize them, we must make axioms and postulates, as a set, an *object of thought*, a subject of thought.

"Thus we must think about *all possible* theorems and postulates, a still higher step, and look down, as it were, upon any particular set of axioms and postulates as merely one element of a large series.

"These ideas of *hypothesis*, or rather, of axioms and postulates, have a very specific form in Plato. In a formal theorem-lattice, any given set of axioms and postulates is what Plato calls a *hypothesis*. Thus, all Euclidean geometry constitutes, really, *one hypothesis*. The introduction of non-Euclidean geometry in various ways, or corrections in Euclidean geometry—which become obvious partly with Nicolaus of Cusa, which develop in the work of Leonardo da Vinci, which appear prominently in Leibniz and so forth, and then emerge as the non-Euclidean geometries of the Nineteenth Century—is the standpoint from which we look today, as did Riemann, at Euclidean geometry, or similar geometries.

"So therefore, we have to think about a *generality of geometries*, in terms of different sets of axioms and postulates, which sets of axioms and postulates are, shall we say, genetic in quality, so that you might say that a Euclidean geometry is a marsupial mammal, and a non-Euclidean geometry is a placental mammal, a higher form of life."[2]

As Lyn shows, there is hope, because when life begins, as in the case of an embryo, for example, it always starts from a transfinite state; that is, from something very simple and determined like a spherical egg which differentiates

[2] Lyndon LaRouche Op. Cit.,

itself through a toroidal process of growth that ends in the synthetic totality of a highly complex chiral organism, which is totally unique. The point to emphasize in this transformation process is not to look for the sense perception design of an Aristotelian "form" but to look for the principle underlying the formation of change. That is the way the human mind should work every time it is challenged to make new discoveries; that is to say, by creating a transfinite process in the manner that Lyndon LaRouche developed in the footsteps of Riemann and Cantor.

2. HENRI BERGSON'S DOUBLE MEMORY FUNCTION

More than a century ago, in 1911, French philosopher Henry Bergson identified two functions of memory involved in two different aspects of recollection; one is a representation of the past, the other is an action on the past. The trick to understanding creativity with respect to history is to connect those two memories together with the glue of your imagination in order to shape your knowledge of the future. Bergson wrote:

> "Following to the end this fundamental distinction, we are confronted by two different memories theoretically independent. The first records, in the form of memory-images, all the events of our daily life as they occur in time; it neglects no detail; it leaves to each fact, to each gesture, its place and date. Regardless of utility or of practical application, it stores up the past by the mere necessity of its own nature. By this memory is made possible ***the intelligence, or rather intellectual, recognition of a perception already experienced*** (Emphasis added) ; in it we take refuge every time that, in the search of a particular image, we remount the slope of our past.

"Habits formed by repeated actions are amassed in the body; these do not represent the past, they merely act it."

"But every perception is prolonged into a nascent action, and while the images are taking their place and order in this memory, the movements which continue them modify the organism, and create in the body new dispositions toward action. Thus is gradually formed an experience of an entirely different order, which accumulates within the body, a series of mechanisms wound up and ready, with reactions to external stimuli ever more numerous and more varied, and answers ready prepared to an ever growing number of possible solicitations. We become conscious of these mechanisms as they come into play; ***and this consciousness of a whole past of efforts stored up in the present is indeed also a memory, but a memory profoundly different from the first, always bent upon action, seated in the present and looking only to the future. It has retained from the past only the intelligently coordinated movements which represent the accumulated efforts of the past; and it recovers those past efforts, not in the memory-images which recall them, but in the definite order and systematic character with which the actual movements take place.*** (Emphasis added) In truth, it no longer *represents* our past to us, it *acts* it; and if it still deserves the name of memory, it is not because it conserves bygone images, but because it prolongs their useful effects into the present moment."[3]

What Bergson is referring to, on the matter of this second memory function "***seated in the present and looking only to the future***" is not only the animal ability of reliving the past in the present, as a dog will do when, recognizing his master, he welcomes him by barking and wagging his tail. This second memory function has the unique human capability of calling up the past to present consciousness through disciplined habits, sometimes for sheer enjoyment like learning a Shakespeare poem, and sometimes for the purpose of changing the content of a past event for the purpose of improving the future. In other words, this

[3] Henri Bergson, *Matter and Memory*, Humanities Press, Inc., New York, 1970, p. 92-93.

second performative memory-function is the function of *disciplined habits* formed by repeated actions of inversions by time reversal. This memory-function is the crucial performative cognitive action which, with the imagination, is capable of identifying the principle of association of ideas which causes change in the Universe as a whole.

Such an association of human faculties, however, must be governed by a harmonic proportionality among *memory*, *imagination*, and *consciousness*. Bergson was implying the existence of such proportionality when he concluded his theory of matter and memory with the following thoughtful provocation. He hypothesized that "***Memory is something other than a function of the brain, and there is not merely a difference of degree but of kind, between perception and recollection***."[4]

Bergson's hypothesis is that memory is not located in the brain, but properly throughout the body as a double-function of the cognitive process. Its function is not only a storage function but also a two-way communication pathway system connecting the present to the past and to the future. The point is that there is no accumulation of memory recollection in the cortical substance of the brain. Bergson established this conclusion by discovering *what is not there*:

> "If recollections were truly deposited in the brain, characteristic cerebral lesions would correspond to definite lost of memory. However, in amnesias, where a past period of our existence is suddenly and radically torn from memory, no precise cerebral lesions have been noticed."[5]

For instance, in the case of Transient Global Amnesia (TGA), [6] the loss of memory is rather the result of the entire faculty of memorizing which becomes dysfunctional or disconnected from the cognitive process. It is the cognitive ability of bringing recollections up to consciousness which becomes defective, not the brain.

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[4] Henri Bergson, Op. Cit., p. 315.
[5] Henri Bergson, ***Matière et Mémoire***, Librairie Felix Alcan, Paris, La Gaya Scienza, © décembre 2011, p. 285.
[6] Transient Global Amnesia is a temporary condition where one's recall of recent events are forgotten and one cannot remember what day it is, where one are, or how one got there. Signs and symptoms are: Sudden memory lost, retention of identity and known people, and impaired word recognition.

From the standpoint of therapy, therefore, a condition such as TGA can be restored to normal functioning when, after a time lapse, a harmonic proportionality has been restored among *memory*, *imagination*, and *consciousness*. The amnesiac person is not aware of this, but in order to restore his memory function, he must reestablish proportionality between *reason* and *power* and the lost connection between his two different memories.

3. THE EFFECT OF *SOCRATIC NEGATIVE CURVATURE*

The secret of the *Socratic negative curvature*, which is the key to the realization of every discovery of principle, doesn't lie merely in the stunning moment of perplexity, as Plato showed in the *Meno* dialogue; it also lies in the stupefying moment of a discovery produced at the same moment in the minds of the creator and of the reader; that is when they both witness the same discovery from opposite positions in physical space-time.

The case of the doubling of the square in Plato's *Meno* is probably the best example of how such a discovery is made through a well ordered recollection , or anamnesia. As Socrates said to Meno about the state of mind of the slave boy: *"**Do you suppose then that he would have attempted to look for, or learn, what he thought he knew, though he did not, before he was thrown into perplexity, became aware of his ignorance, and felt a desire to know?**"*[7] That is how the inversion of the *Socratic negative curvature* enters with full force into the mind before a moment of discovery.

Take the example of the two-page comic book drawing of ***Negaloyd*** designed by French author, Vincent Perriot Casterman. (See figure below) Here, the effect of the new discovery of a great city of the future is like the effect of a discovery of principle where a new dimensionality extends before your mind in a single universal view generated from the top down. It is not the subject matter

[7] Plato, *Meno*, translated by W. K. C. Guthrie, Bollingen Series LXXI, Princeton University Press, Princeton, 1973, 84, c.

which is important, here, but the way the discovery is presented as coming from the future after the observer has been thrown into a state of perplexity. That's when the *Socratic negative curvature* takes its full effect; when you witness the future in the present.

This two-page folder of ***Negaloyd*** depicts the discovery of a great metropolis of the future by the two heroes of the story who are located in the lower right corner of page 75 of the 208 page book. The deliberate unity of effect produced is one of awe before the grandiose accomplishment of a city of tomorrow, interspaced with flying vessels and interconnected with water carrying tubes. As Perriot said: "In fact I wanted to create a "woaouh! effect" which would take the hero's breath away."

Le Figaro, La case BD: ***Negaloyd*** ou les mondes imaginaires d'un nouveau Moebius, by Olivier Delcroix, 10/20/18.

However, discovering such a process of discovery lies in the patient humility of the discoverer, because the discovery of the future lies in the ability to differentiate the characteristic result of turbulence between the *entropic singularities* of a former state of mind and the *anti-entropic singularities* of the new state of discovery; that is to say, the noise of passing from the past to the future as one goes through the inversion of the old manifold to the new. The passage between the two is not entropic, nor isentropic; it is an anti-entropic inversion similar to the one experienced by Alice in Wonderland, when she goes through the mirror. Remember that going through a mirror is an experience much like turning a right hand glove inside out into a left-handed one: a *coincidence of opposites*.

As Lyndon LaRouche demonstrated, the way to understand the characteristic results of an axiomatic turbulence is by investigating the epistemological nature of the change which takes place through a space-time process of negative curvature.

The *singularities* of the previous manifold do not survive through the required inversion of negative curvature and the new ones always succeed in being carried through only by way of finding a *coincidence of opposites*, as in a mirror effect. LaRouche applied the principle of such a transformation of two axiomatically different domains by generating the dramatic difference between a conscious truth and a mere opinion. In his 1988 unpublished internal memo titled, **THE MEANING OF THE TERM 'TRANSFINITE,'** Lyn wrote:

> "The question of truth thus becomes: can truth as we have defined it be made conscious? Obviously, it can be made conscious; we are supplying a conscious form of representation of such truth here.
>
> "Truth is, broadly, consciousness of the activity of one's own creative-mental processes, consciousness of them as an organized process, whose organization is susceptible of intelligible representation, consciously. Adequate truth requires that the creative-mental processes be consciously grasped in terms of reference to their process of development.

"One of the immediate implications of this, is that we know only what we know in terms of the creative-mental processes. It is only that which is supplied to us through the agency of development of our creative-mental processes, which is truly *human knowledge*. Supposed knowledge, which depends upon any different consideration, is merely opinion, not knowledge, and is untruthful, even when it is not dishonest, by virtue of lacking the adequate premises of true human knowledge.

*"**What man knows from experience, references only that experience which is historically efficient in the correlation between implicit willful intent and consequences.*** (Emphasis added)

"History is most readily understood to this purpose from the standpoint of economic science. Human existence depends upon the maintenance and increase of the potential population density. This is accomplished through technological progress, as subject to the constraints of *power-density*. This causal process is sustained by the manner in which the creative-mental powers of the individual generate and efficiently assimilate scientific and technological progress."[8]

When the creative-mental process references its own process of development as a conscious representation of the truth, it becomes a guiding light for all human beings anywhere in the world, and its universality becomes the basis for every new discovery of principle in the future, a new axiomatic transformation.

Such a performative transformation cannot be defined and measured otherwise than by causing the designated change of *purpose and effect* that Lyn identified in the mind of the reader as "***the correlation between implicit willful intent and consequences*.**" This transformation does not merely inform the reader of what the change is going to be about; it actually causes that transformation to take place in his mind as it is spoken; that is, it changes the past world view into a completely new and more civilized view of the future of mankind. The

[8] Lyndon LaRouche, **THE MEANING OF THE TERM 'TRANSFINITE**,' Internal Memorandum, Nov. 7, 1988, p. 54.

precondition for this to happen, however, is that the mind has to be prepared to accept such a change by realizing that such "***willful intent and consequences***" are proportioned between *reason* and *power* in such a way that one should never be overcome by the other.[9]

Consider that *reason* and *power* represent two opposite forces of what Nicholas of Cusa called *Possibility Itself* (*Posse Ipsum*),[10] one represents a weak force, the other a strong force; one was created for the purpose of giving the advantage to others, the other was invented for the purpose of taking advantage of others. When you unify these two opposite forces by means of artistic composition, you can realize immortal masterpieces empowering mankind as a whole. Now, this is not a magical trick; this is the most effective performative method of classical artistic composition that Leonardo da Vinci and Raphael de Sanzio discovered and developed during the Italian Renaissance from the insightful inheritance of Nicholas of Cusa and Filippo Brunelleschi.

Such a performative method of artistic composition is best exemplified by Leonardo's *The Last Supper*, or Raphael's *The School of Athens*. Both frescos represent a form of *thought experiment* whose truthfulness reaches an absolute limit in the spectator's mind by revealing to him that what he is observing is nothing short of the living transformation of his own mind, as if the sole purpose of the work of art had been the transformation of the spectator into a creator. The purpose of such artistic compositions, therefore, is to cause a change in the mind of the spectator in order to improve the future of mankind. This process of transformation is not only the hallmark of all works of art, good or bad, but also the purpose of scientific and technological progress by different means. Lyn developed such a pedagogical experiment, when he wrote:

> "The development of those creative-mental powers of the individual is the essence of mankind's existence for itself, since it is upon this that continued human existence depends.

[9] For a discussion on proportionality of reason and power, see Gottfried Leibniz, ***On the Establishment of a Society in Germany For the Promotion of the Arts and Sciences***, The Schiller Institute.
[10] Nicholas of Cusa, ***De Apice Theoria***, (Concerning the Loftiest Level of Contemplative Reflection), Translated by Jasper Hopkins.

"Into this development, the diverse labors of many contribute. Parents transmit the cultural potential upon which depends the potential for development of the inborn creative mental potentials of the very young. Those who generate and maintain the classical fine arts contribute to this process, as much, and sometimes more than well-ordered educational institutions. These, and kindred labors are as essential to technological progress as the work of scientists. Whoever contributes positively to this result, in some necessary aspect, on even the limited scale of a parent, for example, is doing something which is necessary as a historically efficient personal activity.

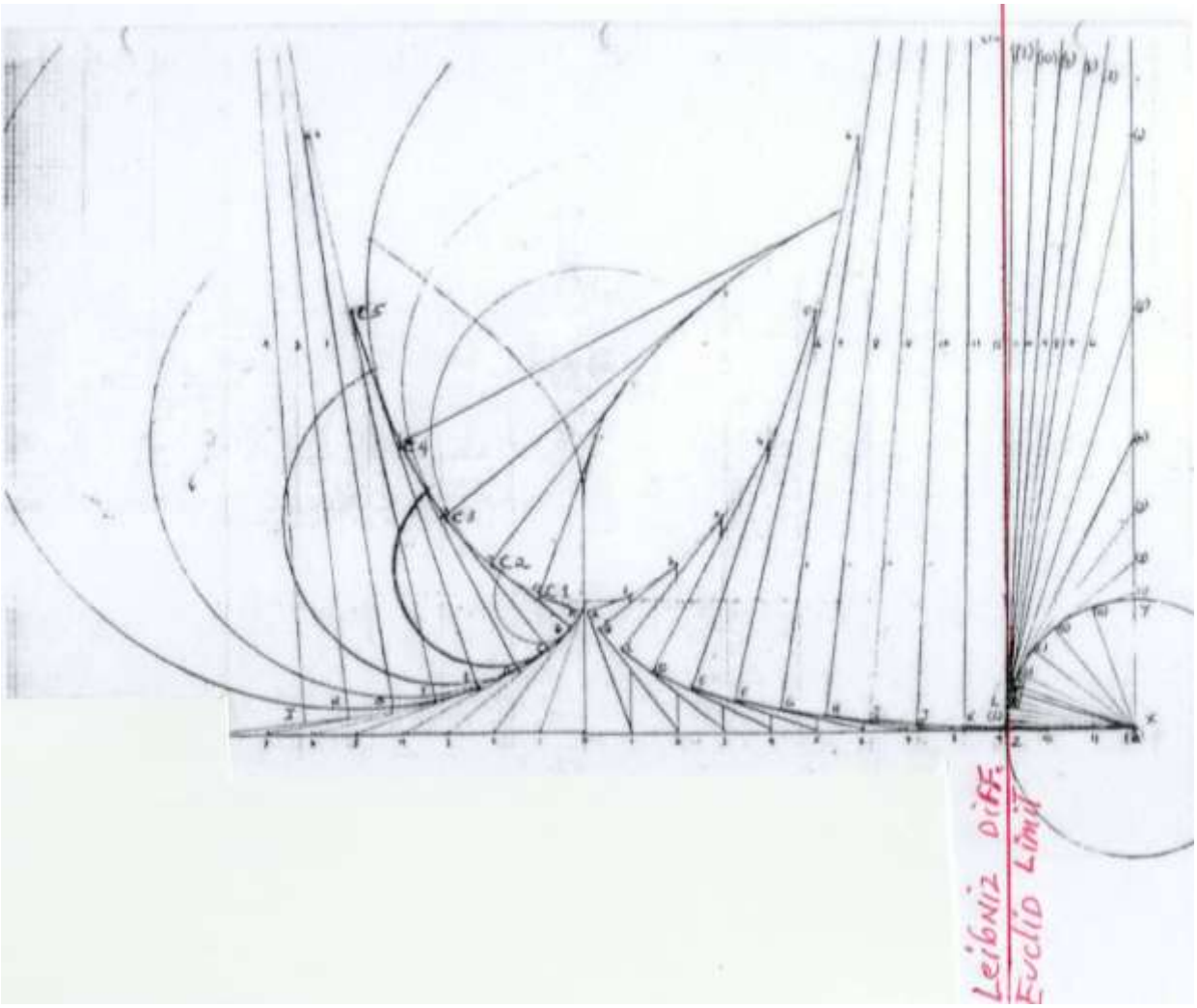
"Unlike the beasts, whose range of adaptive behavior is delimited by inheritance, mankind has no fixed range of adaptive behavior of this type. Relative to this, technological progress represents a succession of willful changes in the adaptive behavior of the human species. These changes are not narrowly technological in range of practice directly flowing from them; they are nonetheless coherent with the change in physical productivity, modes of work, market-basket, and general potential population-density made feasible through those changes in behavior which bear directly upon technological progress. They all have some necessary sort of bearing upon the effective result of technological progress, or of lack of it.

"Insofar as technological progress shows its potential to generate a negentropic form of increase of potential population-density, this shows us the nature of the task submitted to the human mind's creative mental-powers. ***The fact, that through no other means but those creative powers, man has demonstrated the capacity to choose modifications of behavior consistent with negentropy as the result, shows that the mental-creative powers are inherently negentropic, as much as non-linear*** (Emphasis added)."[11]

This last statement deserves some special attention because the proportionality of mental-creative powers is perceived to be inadequate for the task of engendering higher forms of anti-entropy. This is the reason why *reason* always

[11] Lyndon LaRouche, **Op. Cit,** p. 54-55.

seems to be weaker than *power*. But, if the discipline of reason is such that it takes its assurance based on the constructive geometrical form of epistemology that Leibniz provided with his principle of *inversion of tangents*, then, it can be demonstrated how the weak force of *reason* can be equal to the strong force of *power*.



Catenary (evolute)-tractrix (involute) envelope constructed from right to left by the enveloping development process of the Leibniz inversion of tangents.

The catenary-tractrix construction generated from the circle is exemplary of how the evolute-involute principle of negative curvature works by inversion of the

Euclidean manifold of simple deductive circular action into the doubly-connected Leibniz domain of negative curvature. Drag together horizontally, from right to left, both the tangents and the normals (radii) away from the circle three times the distance of that circle's radius. By detaching the tangents and normals from the circle and attaching them to the catenary and the tractrix at infinity, you can transform the positive curvature of the circle into an envelope of negative curvature and create two new curves that did not exist before. By accomplishing this seemingly impossible task, you have jumped from the Euclidean domain to the Leibnizian domain by means of a *unity of opposites*. You have made an axiomatic change. The vertical line separating Euclid and Leibniz marks the blind moment where you have passed from one kind of geometry to the other, through the anomaly of changing your old past into a new future.

Lyn provided the appropriate elucidation for this sort of axiom busting thought experiment, when he wrote about the epistemological nature of passing from a weak force to a strong force as the characteristics of change taking place inside of the atomic nuclei. However, the epistemological precondition is to generate a complete break with Euclidean axiomatics of *discreteness* and *linearity*. Lyn drew the outline of the pathway to take as follows:

> "The characteristic of atomic nuclei, from this standpoint, is the enormous instability they represent. On this account, their existence represents relatively very strong forces relative to the forces associated with the positive curvature of the region of physical space-time in which they occur. Thus, to the degree these intrinsically, strongly unstable configurations viewed as atomic nuclei, are stable, there must be something which, ordinarily, matches the strength of the instability; hence, we attribute to this stability the action of "strong forces."
>
> "Insofar as we consider protons, neutrons, electrons, and photons as "holographic," non-linear regions of electromagnetic harmonics, we have a similar result.
>
> "In non-Euclidean physical least action, we have only two general possibilities. Either the phase-space is of positive curvature, in Riemann's

sense, or negative curvature of the sort represented by Beltrami. These are the principal two minimal surfaces of physical least action possible in a non-Euclidean space. Elliptic curvature is feasible as a combination of both, generated by the addition of a singularity of negative curvature to a manifold otherwise of positive curvature.

"In non-Euclidean topology, the result of the combination of the two as an elliptic sort of relative minimal surface, is a new dimension of action relative to elementary physical least action associated with a simple notion of a steady continuous state.

"On this account, what Riemann references as Dirichlet's Principle of topology must be reexamined, as indicating the potential solution to the problem of singularities considered, rather than that actual solution.

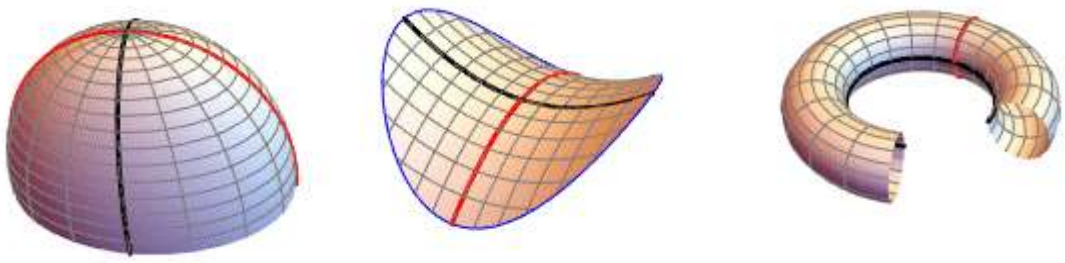
"This problem may be situated in reference to Riemann's 1859 *On The Propagation of Plane Air Waves of Finite Magnitude.* The geometrical construction of the function elaborated in that dissertation, is hereditarily a derivative of the Monge envelope, of the crucial problem of the *caustic* in the work of Leonardo, and of the crucial considerations which led Brunelleschi to define a surface of constant negative curvature. Both the work of Brunelleschi and Leonardo, are directly relevant to Beltrami's work on negative curvature."[12]

Lyn made plain that the Beltrami's proposal of negative curvature considered within the Riemannian domain was implicitly applicable to a sub-atomic type of geometrical epistemology.

[12] Lyndon LaRouche, **Op. Cit,** p. 64-65.

4. THE GEOMETRICAL FUNCTION OF NEGATIVE CURVATURE

What happens inside of the mind of the discoverer when such a process is generated as an experiment of *Socratic negative curvature*? One has to be confronted with the *clash of opposites*. Most people will avoid such clashes and will therefore never experiment creativity. However, those whose imagination can be prompted by their curiosity will tend to find a way to resolve contradictions. This is where the experiment of a *Socratic negative curvature* comes in. If you search for "*surface of negative curvature"* in Google Images, you will get, among other curved images, the following triple assortment of surfaces. The lines of curvature (black and red) are the elementary features of curvature that you need to pay attention to.



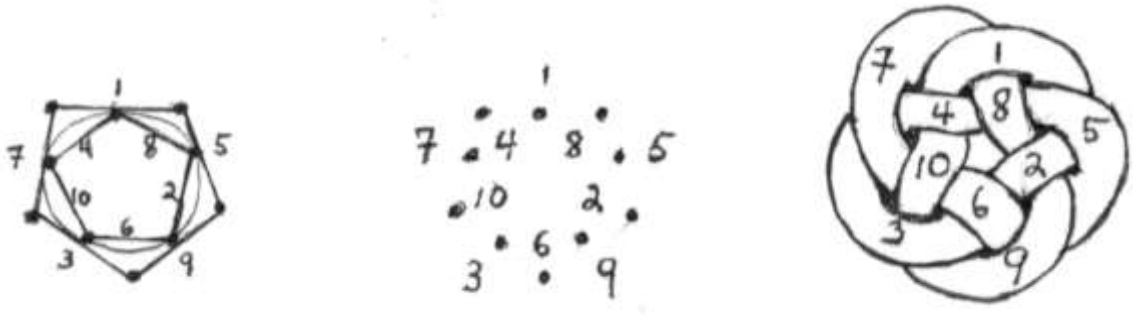
Positive curvature (left), negative curvature (center), and both positive and negative curvature (right). Created with the Wolfram Language

Don't concentrate on the visual appearance of the surfaces themselves. Those three metaphorical figures are obviously not adequate to identify what takes place in the mind; but, they are sufficient to get you started on an idea reflecting the axiomatic difference of opposition between the concepts of *positive* and of *negative*. The difference indicates the *opposite directions* of the two different orientations of circular action (red and black) being directed against each other at right angle. The point is to discover the doubly-connected circular action as an action and not as an image in your mind.

Note that the torus figure (right) is a closed geometrical figure which unifies both *positive* and *negative* curvatures. In other words, the torus is a useful pedagogical tool showing how one can go from the *positive* side to *negative* side of this *doubly-connected surface* in a continuous manner, without reaching the limit of an edge and without having to go through the discontinuity of a singularity. The torus, therefore, represents an excellent geometrical form of expressing a *coincidence of opposites*. This may appear to be a very simple pedagogical example, but it has profound implications when you begin to investigate its geometrical and epistemological characteristics together, leaving out any mathematical consideration.

What happens in the opposition between *truth* and *opinion* in the previous LaRouche experiment? The mind experiences a "gap" between the two, a discontinuity between them such that the two domains could not be reconciled as one. Let's take a geometrical example to clarify this epistemological point more specifically. Ask yourself: Why can't a polygon become a circle? Even a polygon with an extremely large number of sides cannot become a circle. Why not? The reason is that the circle and the polygon belong to two fundamentally different epistemological geometries, which have axiomatically different axioms; the circle belongs to the non-linear curved domain and the polygon belongs to the straight line flat domain, and the two cannot integrate each other in a continuous fashion without encountering a mathematical discontinuity. At best, they can only touch each other as in a tangent contact without traversing each other. In that sense, the two domains are incompatible and contrary to each other, yet, both of them can be generated by similar circular actions, one by rotation and the other by folding.

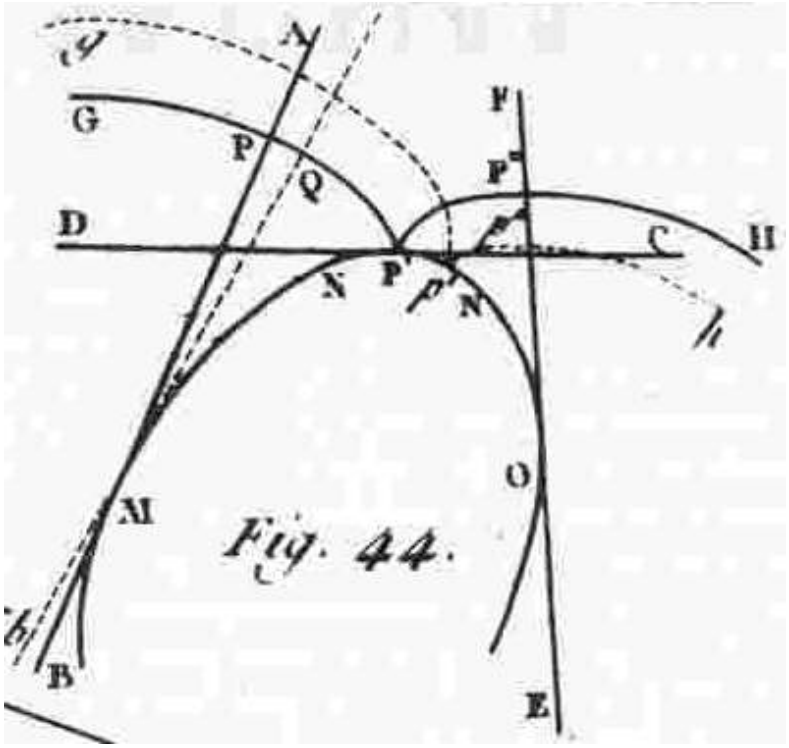
Take, for instance, the case of two pentagons tangent to a circle which become transformed into a knotted torus, where the series of sides numbered 1 to 10 is discontinuous in one manifold and continuous in the other.



The two pentagons tangent to the circle (left) have left traces of their edges (center) only to disappear completely into a new higher dimensionality of a continuous doubly-connected Torus (right).

The discontinuous singularities of sides and vertices in the polygonal manifold no longer exist in the torus. In the simply-connected manifold (left), the two pentagons cannot communicate with each other; they are as if separated axiomatically by a circle which opposes them internally and externally. The boundary condition of the circle prevents their communication at the exception of the singularity of five tangential points of contact, 1, 5, 9, 3, and 7. In other words, the only time the three figures become one (the *unity of opposites*) is through their tangency points, like three belligerents sitting at a negotiating table. This condition is similar to a geopolitical situation where opposing forces cannot see a way out of their condition because they are unable to find the pathway to a resolution of their conflict.

That anomaly should tell you something; it should tell you that it is through such a singularity of tangency points that the human mind can go from simply-connected to doubly-connected circular action. This is the reason why the Leibniz method of inversion of tangents is so rich in possibilities. The same principle applies to the Monge envelope generated by doubly-connected involution and evolution, provided you resolve the two opposite functions into a single one; that is, the opposite functions of the tangent and the normal to two different curves.



"The **MNP'O** curved line against which the straight line rests by touching it everywhere is called the evolute of the curve **GPP'P"H**, because one of its arcs **MNP'** is equal to the corresponding part of the moving straight line **MP**, and the curved line **GPP'P"H** is called the involute of curve **MNO**."[13]

In the process of generating surfaces of negative curvature, Monge established the principle of doubly-connected curvature through the double motion known as the *evolute-involute motion* generated from the rotating motion of a straight line which originates from the tangency of one curve, while it is simultaneously normal to another.

This method of constructing a *coincidence of opposites* by inversion of tangents became one of the most significant discoveries of the French Ecole Polytechnique under Monge, Carnot, and Poncelet, in the footsteps of Leibniz, because it actually demonstrated how the creative process of the human mind worked like a caustic; it established for the first time in history the *enveloping development principle* which connected the physical principle of light to the epistemological development of the human mind. Lyn saw in this discovery of principle the crucial link between the historical breakthroughs that connected the Cusa-Brunelleschi-Leonardo school of artistic and theological epistemology to the Gauss-Riemann school of physical geometry. The new principle defined the

[13] Gaspard Monge, *Leçons de Mathématiques*, Dunod, 1992, p. 406-407.

envelope-function of negative curvature as the best suited method to express the process of creativity. Lyn wrote:

> "The exemplary feature of the function, on which we concentrate attention here, is that envelope-function defines the singularity as a region of negative curvature. The point is, that that region of negative curvature defines the form of continuous action which bridges the two successive states.
>
> "Extending this in the manner more general evidence suggests, including non-Euclidean topology as such, every such zone of singularity in the Gauss-Riemann domain, by the nature of the function appropriate to define its generation, is defined as a hyperbolic singularity, a zone of negative curvature, by the manner in which the generation of the singularity is thus defined. The same result is presented by the mapping of the creative-mental processes. Creativity, as located within the zone of "turbulence" within a creative-mental process, has the topological characteristics of a Socratic method, whose crucial feature is negative curvature.
>
> "We may represent that function as Riemann does in the cited reference. The comparison of the potential with the actual result, referenced to the "point" of singularity, leads to the correct result. From this standpoint, we may define Cantorian functions, or the like, treating the characteristic of continuous creative (negentropic) processes as the increase of potential defined as increase of the density of singularities per interval of action. However, the internal character of the existence of the point itself must be resolved, to eliminate the disabling notion that such zones of singularity can be adequately represented by the images of points or holes.
>
> "Once we have resolved such topological issues respecting the atomic nucleus and so-called elementary particles other than what is implicit in positron-electron interactions, the issues we have referenced are the frontier of physical science. As soon as we conquer that frontier, we are then confronted immediately by the array of problems associated with the matter/anti-matter actions. How we resolve the questions posed by

Beltramian negative curvature in the first of these two instances, will define the apparatus on hand for beginning the attack upon the second."[14]

Here, Lyn has extended the project much more broadly and in a far more reaching epistemological potential than this report is capable of reporting on; however, let this be taken as the epistemological principle from which present researchers in artistic composition as well as in science and statecraft should start from, if they wish to bring a fruitful contribution to the human knowledge of the future. However, the price to pay for accomplishing such a task must be the shedding of all axioms and postulates which prevent such a new principle to be validated. This is why Lyn recommended:

"Physical science, and scientific thought more broadly, must now proceed to shuck the axiomatic notions of ontology convenient to the assumptions underlying the *finite mathematics* of a *discrete manifold*. It is now approximately four centuries after Kepler implicitly proved conclusively: 1) *That the laws of physics are to be adduced from nothing more than the curvature, and possibly changes in curvature, of physical space-time;* and 2) *The fundamental law of the universe is the reign of universal negentropy.* We have reached the point that progress in physical science dies of stagnation, unless it abandons every assumption contrary to these implications of Kepler's work, for astrophysics, for biophysics, and sub-atomic microphysics.

"The result of this shift in the definition of the elementary features of *ontology*, is typified by the proper definition of "potential" in the setting of the non-Euclidean synthetic geometry specific to the construction of the Gauss-Riemann complex domain. All well-defined functions are those which treat as the principal variable of characteristic physical functions the harmonic enumerability of density of singularities per interval of action.

"To make this the basis for an effective physical science, it is indispensable that we free the notion of topological singularities in the Gauss-Riemann domain, and otherwise, from the status of "points" or

[14] Lyndon LaRouche, **Op. Cit,** p. 66.

"holes" in an otherwise continuous, positive surface. We know that these "points" or "holes" correspond to what conventional utterance today describes as the "strongest forces" in physical science's empirics. Thus, the intelligible representation of that which occurs, characteristically, inside these "points" or "holes," is defined, for a future potential theory, as the central question facing physical science today.

"We must, therefore, save the precious energy of the scientific workers and others available for such work, by declaring it to be a diversionary waste of time to continue to discuss matters bearing upon this within the frames of reference preferred by the fanatical adherents of deductive method. All mental effort available ought to be freed from such tiresome and useless diversions of reliving the intellectual failures of a wasteful past, that the creative potential of professional minds must be concentrated upon solving the challenges implicit in our identification of the matter of negative curvature."[15]

Here, in a nutshell, Lyn is calling on the mental efforts of the scientific worker to return to the Cusa principle of *Possibility Itself* (*Posse Ipsum*),[16] the principle from which man, created in the Image of God, becomes capable of resolving all types of *coincidence of opposites* in all domains of knowledge, by having *reason* turn *power* into a potential for mankind's development. Lyn's idea of the "wavicle" applied in the small or in the large is of that order of magnitude. Take, for example, the quadratic set of forces underlying all matter in the Universe. There are four forces governing matter: gravity, electromagnetism, the strong nuclear force, and the weak nuclear force. The epistemological characteristics of those four forces are based on the proportionality between *reason* and *power* as understood and treated by Leibniz. The strong and weak forces that Lyn is referring to in his report relate to Gauss and Riemann forces; the strong force relates to negative curvature and the weak force relates to changes in positive curvature. Both forces play important coordinated roles in nuclear fusion.

[15] Lyndon LaRouche, **Op. Cit,** p. 67.
[16] See Pierre Beaudry, **NICHOLAS OF CUSA AND LYNDON LAROUCHE'S CONCEPT OF THE TRANSFINITE** and Nicholas of Cusa, ***De Apice Theoria***, (Concerning the Loftiest Level of Contemplative Reflection), Translated by Jasper Hopkins.

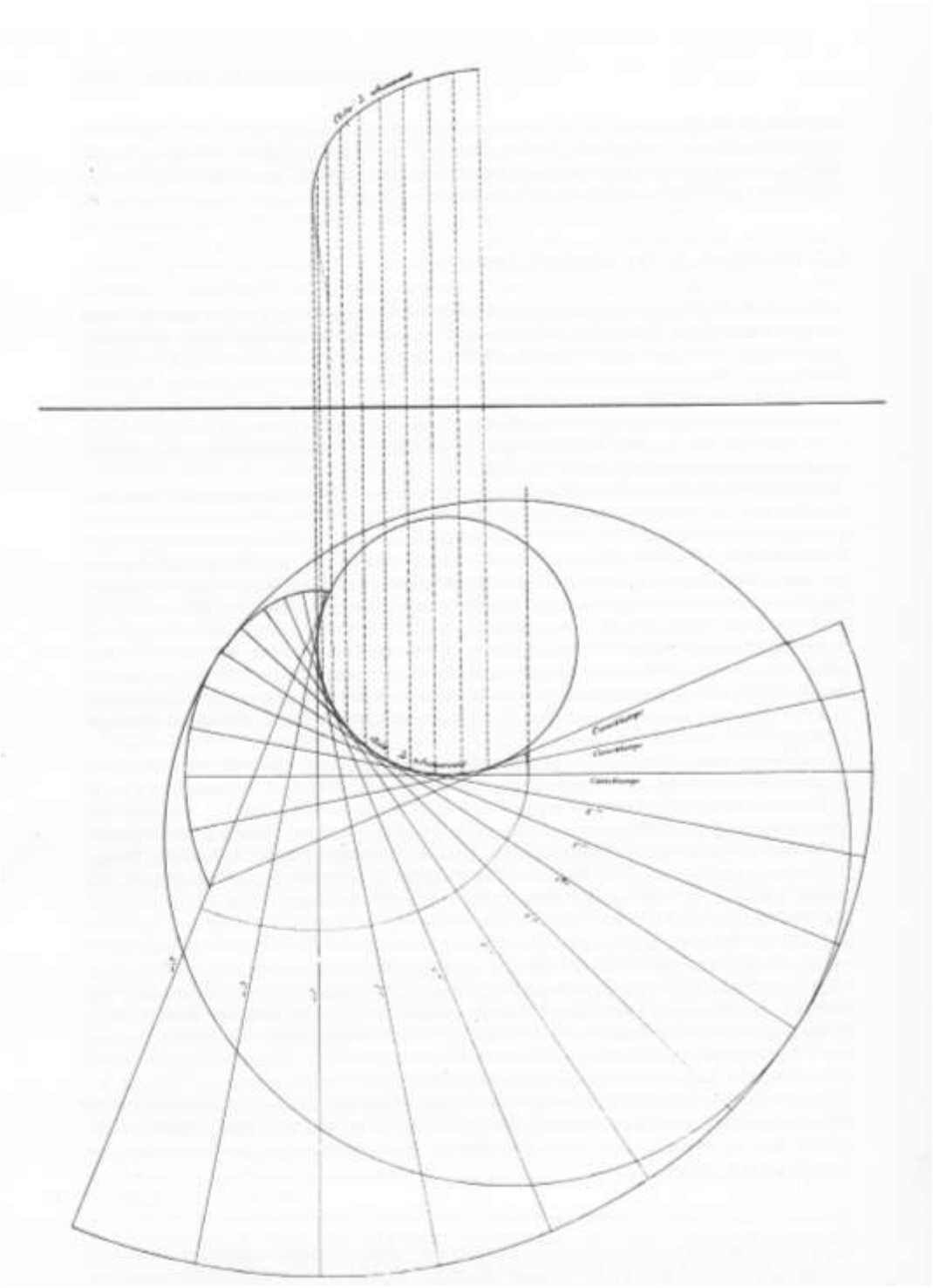
The weak force was discovered by the Italian and naturalized American physicist, Enrico Fermi, who is known as the "architect of the atomic bomb."[17] In 1933, when he was still in Italy, Fermi discovered that a weak force interaction was required to explain beta decay in which a neutrino and a beta ray were emitted from an atomic nucleus. The reason why it was so difficult to detect is because the interaction represents a very short attraction force which is about 0.1 percent of the diameter of a proton. The strong force, on the other hand, is the force that fuses two protons together; it is the strongest force of the four. It is the force that binds together fundamental particles to form larger particles. However, Fermi's method did not require the use of particle accelerators.

Lyn has been critical of the Standard Model developed from particle accelerators since the 1970's, because it is fraught with Euclidean assumptions of *discreteness* and *linearity*. This is the reason why he advocated more of a Cusa approach of *coincidence of opposites*, in the small as in the large. Instead Lyn's hypothesis calls for the investigation of Kepler's Third Law from the vantage point of the curvature of an envelope of negative curvature emitted by the Sun during the formation of the planets:

> "Indeed, the very existence of at least most of the planetary bodies depends upon a thermonuclear fusion, at much higher energy-flux densities than within the Sun itself, occurring in an envelope of material, orbiting proximate to the Sun. That envelope is demanded by Kepler's Third Law, as applied to the "shedding" of higher rates of rotation by a rotating star. It is indicated that the fusion occurring in that envelope, at the appropriate point in the Sun's "life," was an electromagnetically polarized fusion, well suited to generate the periodic table of our solar system."[18]

[17] The fact that Italian theologians, Cathedral builders, scientists, and artists have been the most involved researchers in the study of negative curvature throughout the last 700 hundred years of human history should not escape the attention of the reader. Do not be surprised if the coming axiomatic change underlying the current paradigm shift of the LaRouche World Land-Bridge great project gets triggered from the shores of Italy.

[18] Lyndon LaRouche, **Op. Cit,** p. 37.



Envelope of negative curvature that Monge called "canal surface" generated around the circular cusp of a sphere whose center is moving along a given curve on a horizontal plane. In Gaspard Monge, *Op. Cit.*, p. 300.

CONCLUSION:

As he stated it himself, the unique contribution that Lyndon LaRouche made to the geometric epistemology of the creative-mental process can be traced back to Gottfried Leibniz and his conception of *technology* as applied to "a measurable magnitude in physical-economic processes."[19] Over the years, I have demonstrated repeatedly that a similar correlation can also be made in relationship to the domain of artistic composition to the extent that crucial features of performative validation, included in such works of art, have a direct impact on the spectator in the form of an axiomatic transformation.

The causal process of such a transformation can only be known through experience and can only be conveyed to another person through a corresponding performative transformation applied to someone else in turn. In other words, the truth of such a creative-mental activity can only be known as an organized social conscious process when an intelligible representation is consciously grasped by someone else who uses the same process of development for the improvement of mankind, and makes it public as such.

At the end of his book on matter and memory, Bergson noted that such a correlation of thought and transformative action can be summed up by solving the paradox of freedom and necessity. He wrote: "Thus, whether we consider it in time or in space, freedom always seems to have its roots in necessity and to be intimately organized with it. Spirit borrows from matter the perceptions of which it feeds, and restores them to matter in the form of movements which it has stamped with its own freedom."[20]

Is there a better way to employ one's time than to search for the anomaly-singularity that will bring about such a self-conscious enveloping development power over the Universe?

[19] Lyndon LaRouche, Op. Cit., p. 4.
[20] Henri Bergson, Op. Cit., p. 332.

If this is understood properly, then, the direction that Monge had originally discovered from Desargues and Leibniz for understanding the enveloping process of an evolute-involute motion was most fitting for understanding the directionality of the cognitive process. Creative discovery is the same as the cognitive pathway of consciousness foraging back into the hidden layers of human historical memory.

This sense of direction means that once the content of human historical memory becomes tangent to the evolute sphere of your consciousness, the tunnel envelope of negative curvature generated around the circular cusp of you thinking process becomes everywhere proportional to the involute of any future discovery.

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