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# ON LYNDON LAROUCHE'S NOTION OF 'ABSOLUTE TIME'

By Pierre Beaudry, 11/14/16

In memory of Leibniz who died 300 years ago on November 14, 1716

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## FOREWORD

*Lyn's 1988 report on 'absolute time,' which I posted on this blog, last week, is probably the most authoritative paper ever written on the notion of change by time reversal, because it is also, without a doubt, the most essential paper on the notion of time as a direct function of the creative mental process.*

*My report shows how Lyn's rediscovery of the principle of least action established by Nicholas of Cusa has effectively changed the past by changing how the past changes the future. The report includes the following sections:*

1. LYN'S TIMELINE FOR TIME REVERSAL CAUSALITY
2. HOW THE MIND CAN CHANGE PAST HISTORY
3. THE MOVING IMAGE OF THE SIMULTANEITY OF ETERNITY
4. THE CYCLOID, ISOCHRONICITY, AND INFINITE DIVISIBILITY
5. HOW MIND BECOMES A PHYSICAL CAUSE IN THE UNIVERSE

## INTRODUCTION

*“But You are wonderful, my God! You speak once, and You conceive once. How is it, then, that all things do not exist at the same time but that many exist successively? How is it that from the one Concept there are so many different things?”*

Nicholas of Cusa, *De Vision Dei 10*, trans. Hopkins, p. 699.

The answer to that fundamental Cusa question is not what you would expect. The notion of ‘*absolute time*’ that Cusa was seeking to identify for the creative human mind does not represent something that never changes and which exists without end, as in the Mind of God; it is something which takes place in the simultaneity of all times and which is true in all times and for all times, instantaneously, for all human minds to assimilate and comprehend. In other words, Cusa was looking for something that does exist in our universe of succession, but which does not suffer from relative succession of physical space-time. It is in the world, but not of the world. That is the idea of time that Lyn has been attempting to restore for science today, beyond the limitations of the deductive logic of sense-certainty.

The notion of ‘*absolute time*’ that Lyn began to develop during the 1980’s was in continuation with the notion of ‘*simultaneity of eternity*’ that he developed during the 1970’s; a notion that related directly to the works of Nicholas of Cusa and to the ability that human beings have of being ‘*God-like*’, when they use their minds for the purpose of creative thinking as opposed to deductive reasoning.

From that vantage point, Cusa’s conception of time is absolute in two ways: one, it is relative to the lower frame of reference which is the space-time of general relativity and, the other, it is relative to the higher frame of reference which is God’s Eternal Time. Lyn’s notion of ‘*absolute time*’ stands between those two incommensurables as the marker of the axiomatic change taking place between the

end of the hegemonic Aristotelian deductive thinking that has plagued mankind for more than 2,000 years and the need for a renaissance of Platonic thinking, in science today. Thus, Lyn restored what Cusa had established as the fundamental form of thinking of creative time for all future time to come. Here is the answer that Cusa gave to his fundamental question:

“You enlighten me, who am situated at the threshold of the door; for Your Concept is most simple eternity itself. Now, *posterior* to most simple eternity no thing can possibly be made. Therefore, infinite duration, which is eternity itself, encompasses all succession. Therefore, everything which appears to us in a succession is not at all posterior to Your Concept, which is eternity. For Your one Concept, which is also Your Word, enfolds each and every thing. Your eternal Word cannot be multiple or different or variable or changeable, because it is simple eternity. In this way I see, O Lord, that posterior to Your Concept there is not anything; rather, all things exist because You conceive [them]. Now, You conceive in eternity. But in eternity succession is—without succession—eternity itself, i.e., Your Word itself, O Lord God. Any given thing that appears to us in time was not conceived by You *before* it existed. *For in eternity, in which You conceive, all temporal succession coincides in [one and] the same now of eternity.* (My emphasis) Therefore, where the future and the past coincide with the present, nothing is past or future.” (Nicholas of Cusa, [\*De Visione Dei\* 10](#), trans. Hopkins, p. 699.)

## 1. LYN'S TIMELINE FOR TIME REVERSAL CAUSALITY

*“We have shown, in earlier locations, that the space-time curvature of the creative process is identical with that of astronomical, microphysical, and biophysical space-time. This congruence is the sole basis for the possibility of real human knowledge of the universe. Thus, nothing called human knowledge is knowledge in fact, unless it expresses directly the product of creative-mental processes, as opposed, for*

*example, to the axiomatic linearity of all formal deductive reasoning. Thus, only the intelligible representations of those mental acts of our species by which valid fundamental discoveries in physical science are generated and assimilated efficiently, represents something truly appropriate to the connotation of "scientific knowledge."*

Lyndon LaRouche, [A NON-MYSTICAL VIEW OF THE NECESSITY OF EXISTENCE OF THE NOTION OF 'ABSOLUTE TIME'](#), 1988

In his 1988 paper on '*Absolute time*,' Lyn gave an illustration of what was required for the human mind to access this notion of time which exists in the *simultaneity of eternity*, and, in doing so, he demonstrated how difficult it was to grasp it, because it reflected the difficulty of shedding the bad habits of deduction that we have been accustomed to think with for too long in the temporality of succession. Lyn wrote:

“Let 'P(O)' signify the latest point in relative time, prior to occurrence of both A and B, at which we might construct, in terms of a constant speed of light, a coherent 'historical' correlation of event A with B. Let the existence of an event A' be postulated, different than the A defined by simple historical construction of the coherence of events A and B. Let A' be defined as an event, substituted for A in A's place in such a coherent representation, such that no coherent representation of the A'+B relationship between A' and B exists, relative to point P(O), in terms of the historical function associated with the A+B correlation.

“Nonetheless, there does exist a different 'historical' process, also relative to point P(O), by which the coherence of A'+B is defined.

“In other words, if we act upon the locality of scheduled event A, such that we produce A' instead of A, we change the entire history of the process over the interval beginning from point P(O) to date.

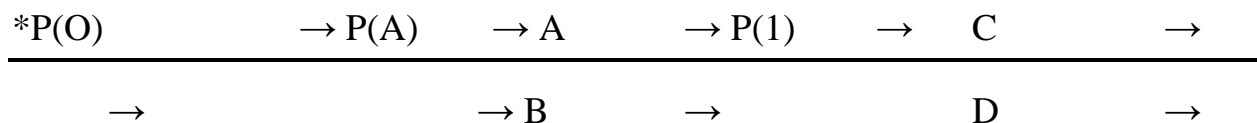


“Let the time of occurrence of event A be designated by P(A). There exists some future point, P(1), - later than P(A), such that event C corresponds at this point to event A at point P(A); there also exist at P(1), an event D, which corresponds to event B at P(A). If A+B prevails at P(A), then C+D exists as an extension to P(1) of the historical process P(O)-P(A); if A'+B at P(A), then a different historical process exists for the interval P(O)-P(A), and thus, a different historical process for the interval P(O) – P(1) than for the case of occurrence of A+B at P(A). For this changed history, we have at P(1) C'+D', instead of C+D; we may also have C'' in the same sense we might have A' instead of A at P(A).

“In general, the occurrence of change in history, typified by substitution of A' for A, or C'' for C or C', in these cases, occurs as a retrospective change in preceding history, and also as a potential change in future history. The nub of the matter, and crucial experiments of such import, is the demonstration that that history can be changed in this manner and degree.” ([7. LYNDON LAROCHE, A NON-MYSTICAL VIEW OF THE NECESSITY OF EXISTENCE OF THE NOTION OF 'ABSOLUTE TIME'. 1988.](#))

If I may illustrate the process in a more linear manner: let's compare what Lyn is describing with two different timeline successions; the linear chronological timeline, which goes from past to future, and the non-linear time-reversal timeline, which goes from future to past. Those two timelines, taken separately, represent the time functions of efficient and of final causality, respectively. The idea, however, is to conceive of them as functioning together in a non-linear manner.

1) Chronological timeline representing efficient causality from the past to the future:



2) Time reversal timeline representing final causality from the future to the past:



←

B ←

D' ←

\*P(O) represents the past as it was and P(O)+A' represents the past as it is changed. Since there exists nothing in P(O) which can determine a change in the coherence of A+B, there must exist another historical process which can explain the coherence of A'+B with respect to P(O) and change the whole of history by substituting A by A'. That other historical process is the time reversal creative process that is required to add to the first if we are to begin understanding the Cusa idea of a moment where "*all temporal succession coincides in [one and] the same now of eternity*"; that is, in the "*simultaneity of eternity*." As Lyn demonstrated, it was Nicholas of Cusa who first discovered that it was such a time reversal creative process which elevated human knowledge to become relative to God's Time. Lyn gave us an excellent example of how to access this idea by recovering how the true function of Nicholas of Cusa had been forgotten for over 550 years.

## 2. HOW THE MIND CAN CHANGE PAST HISTORY

*"You cannot write about creativity, unless you take the pathway which demonstrates its performative process."*

Dehors Debonneheure

In his paper on "*absolute time*," Lyn showed how a human mind in the future can change the past in a manner such that, by reflecting back on a past conception which had failed to affect society as a whole during a long period of time, it can change human history at a later date by reviving that dormant conception and cause an effective paradigm shift or axiomatic change in human society as a whole. Such an event belongs to what Cusa identified the specific moment of time where "*all temporal succession coincides in [one and] the same now of eternity*."

Such a moment of time cannot be grasped by the deductive method of Aristotle and Euclid; yet, the history of ideas demonstrates that such events have

taken place in history with several human minds and, thus, have partially changed the history of ideas under many different forms in different places and times.

*Each new change in the history of ideas represents a similar moment of changing the past for the purpose of improving the present from the future, instantaneously.* Lyn gave the example of Nicholas of Cusa as the key factor of change in today's society. He asked: What happens when a conception, which had remained hidden for more than 550 years, suddenly becomes recognized as being fundamental for the future survival of the human species? Lyn answered as follows:

“In this hypothetical, but plausibly actual case, we are directly accessing conceptions generated over a half-millennium ago. Moreover, what we might well be assessing is a conception which Cusa put to paper, but which was not grasped by intervening generations. Thus, Cusa is enabled to act directly upon the present, more than five hundred years after his death, to change future history, and the outcome of past history, both, by a willful action of a type which had no efficient consequences during a span of more than five hundred years. This begs the notion of *absolute time* in a way that has physical meaning.” ([7. LYNDON LAROCHE, A NON-MYSTICAL VIEW OF THE NECESSITY OF EXISTENCE OF THE NOTION OF 'ABSOLUTE TIME', 1988.](#))

The point to focus on, here, is that Cusa's past action, affecting today's human history, is in the “*simultaneity of eternity*.” This implies that not only Cusa's actions have changed history, in a delayed fashion, but that he is no longer the same person that he used to be when he wrote that conception more than 550 years ago. His role in human society has changed history because someone in the future has changed his role in society. By changing human society 550 years after his death, Cusa became a new man, a changed human being who had never existed before and who now starts a new existence in the 21<sup>st</sup> Century; that is to say, a man who now lives outside of chronological time by embracing the characteristics of isochronicity.

### 3. THE MOVING IMAGE OF THE SIMULTANEITY OF ETERNITY

*“Now, the idea of the ideal being was everlasting, but to bestow this attribute in its fullness upon a creature was impossible. Wherefore, he resolved to have a moving image of eternity, and when he set in order the heaven, he made this image eternal but moving according to number, while eternity itself rests in unity, and this image we call time.”*

Plato, *Timaeus*, 37d-e, trans. Benjamin Jowett.

What happens to history, when A has come to be replaced by A' for the entire period going from P(O) until today? Such a retrospective change has changed all of past, present, and future history, simultaneously. This is what Plato called the “*moving image of eternity*” and what we call time. What Lyn recommended, at that point, is to eliminate all of the fallacies of naïve sense-certainty from our experiment of time and replace them by a least action conception.

Once the previous axiomatic view of naive sense certainty of linear-pairwise perceptual relationships among things is replaced by the conception of a least action form of performative change, the platonic notion of time as a “*moving image of eternity*” takes hold of your mind as universal electromagnetic gravitation was conceived and derived by Kepler from his three laws. This means no more deductive mathematics measuring discrete manifolds. As Lyn put it, the measure has to be expressed in terms of increases in energy-flux-density:

“Since only the appropriate synthetic geometry corresponds to the real universe’s *negentropy*, whereas deductive mathematics wrongly superimposes the inference of universal entropy, we are obliged to discard deductive mathematics in dealing with all important phenomena, and must



never imagine that a deductive construct produces anything but fallacious inferences respecting matters of ontology and physical causation.

“We measure *negentropy* in these Riemannian-Cantor terms, as a rate of increase of the density of mathematical discontinuities per arbitrary small interval of action described by an appropriate function.

“This view liberates us from the false, sense-certainty assumption carried over naively into the construction of any discrete manifold. The assumption of discreteness itself colors every observed or imagined event with the quality of a completed action. There are no completed actions in the universe, but only causes of further action. Reflection on this point dispels the conceptual difficulties suggested by the idea of retrospectively altering past history.” (Lyndon LaRouche, [ON ABSOLUTE TIME](#), P. 4-5)

Viewed from this higher vantage point, Lyn then recasted the role of the writings of Nicholas of Cusa into a modern scientific mold by adding:

“The papers of the sixteenth-century Nicholas of Cusa are reassembled, and examined afresh in light of the history of science since 1440. Up to the point of that reexamination, Cusa’s form of discovery of the isoperimetric theorem and correlated notion of physical least action, has had a momentous effect on the development of science, and thus of history over the recent five hundred and fifty years. Now, we discover something new from review of these papers, such that the historical consequence of that original work is changed by means of direct reference to the original writings.

“If this appears to be merely an analogy, such opinion is sorely mistaken. It is sufficient even to begin to attempt to describe the physical function representing what has just been stated by means of this illustration.

“Can, for example, advances in scientific knowledge be represented as an enumerable, ordered series of discoveries of fundamentals and near-fundamentals? One is tempted to say, “Of course!” Less exuberantly, we may say that there exists the means for intelligible representation of those

creative mental processes responsible for the generation and efficient assimilation of valid fundamental discoveries in physical science. Moreover, discoveries of that sort can be ordered as an enumerable series through that representation, as a function of *negentropy*. Also the technology subsumed by such increased *negentropy* in scientific progress correlates with potential increases of per-capita value of potential population-density, in the same sense and order as the negentropic ordering of discoveries.

“Hence, we can order the account of history as a relationship between *negentropy* levels of available scientific knowledge and the structure of practice of society, the latter in terms of per-capita values of potential population-density.

“More generally, by changing the present, contrary to the apparent functionally-ordered drift of events, we are changing not only the consequences of past history; we are changing the function which is required to account for past history’s unfolding.” (Lyndon LaRouche, [ON ABSOLUTE TIME](#), p. 5.)

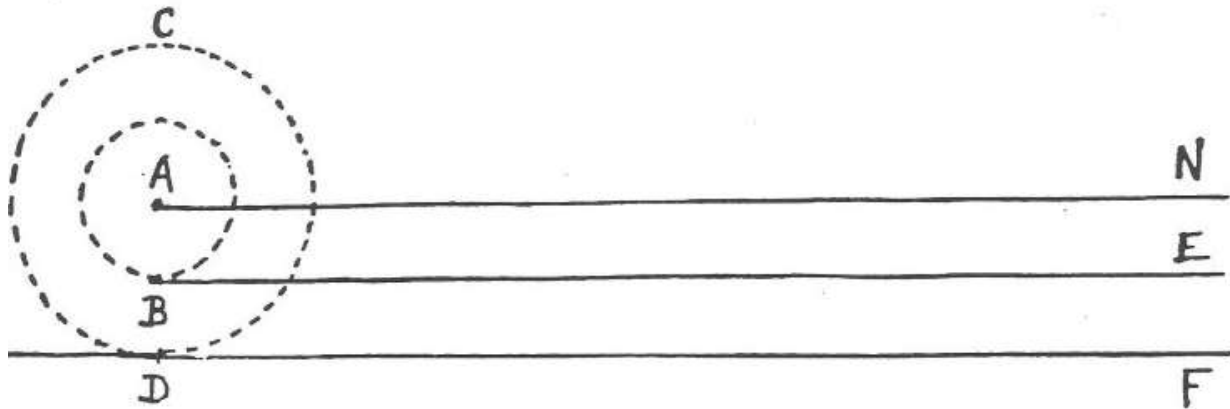
#### 4. THE CYCLOID, ISOCHRONICITY, AND INFINITE INDIVISIBILITY

As far as I am able go back into Lyn’s ordered series of discoveries of fundamentals and near-fundamental ideas of discovery, it appears that the investigation of the cycloid begins with Plato, possibly with his seminar on the isochronicity of the Good, which has not passed down to us in a completed form, but which is reported in part by Aristotle’s reactions. The investigation begins with the paradox of two concentric circles rotating together which had baffled Aristotle, as he reported it in *Mechanics, questions 24 and 25*.

The paradox became known as the “[Rota Aristotelis](#)” and was reportedly investigated by A. Piccolomini (1547), Cardan (1570), Benedetti (1585), and Monhantheuil (1599), and Galileo (1600), etc. None of the above was able to solve

the paradox but Gilles Personne de Roberval (1602-1675) did. The paradox can be stated as follows:

*“Why is it that when two concentric circles are rotated together, they travel the same distance, while they travel different distances when rotated separately.”*



**Figure 1** The paradox of the cycloid.

This paradox was reportedly introduced to the French *intelligentia* in 1615 by Father Marin Mersenne (1588-1648) who attempted to solve it without success by means of “contraction” and “dilatation.” Mersenne, then, turned to his friend Roberval who solved it for him, as demonstrated in his letter of January 6, 1637. (See **Figure 1**) Roberval solved the paradox by emphasizing the doubly-connected motion of the process: 1) The *transiting (transporting) motion* of center A on line AN. 2) The *rotating motion* of point D on line DF.

Roberval noted that, because the ratio of the two circles was 2:1, the speed of point D on the larger circle had to be double the speed of B on the smaller circle. The secret was not in the line or in the surface, but in the motion. This was the first discovery of isochronicity in the cycloid’s double-motion. The two circles arrive together at the end of the process because of the ratio of the two different motions. It is the ratio of *transiting (transporting) over rotating* which causes the paradox to be solved and, in doing so, generates a new form of isochronic curvature of physical space-time.

The idea of isochronicity that Cusa spoke about in the '*coincidence of all succession*' could, therefore, be expressed by a ratios of two or more different motions which are everywhere proportional on the surface of a rotating object; that is, a surface on which every position is equivalent to any other in a process based on multiply-connected motions. For example, the idea of a motion which turns a two-sided surface turned into a single one, as the case of the Moebius Strip, also represents a similar characteristic.

The idea of isochronicity of the Moebius Strip can also be derived from the twisted action which produces such a "*same time*" effect, as the required twist that the strip shows in an action by time reversal. The fact that any point on this Moebius strip is attached to the infinite pathway of a two-sided surface turned into a one dimensional surface demonstrates that past, present, and future can be made to be the same, everywhere, in the *simultaneity of eternity*. It is not by accident that the shape of the Moebius strip also resembles the mathematical notion of infinity.



**Figure 2** Moebius Strip

What is implied in Lyn's new conception of '*absolute time*' is the existence, in human history, of a sort of mental isochronicity of space-time, a sort of '*Absolute Time*' as it can be observed in some unique cases of least action applications such as the catenary curve, the tractrix curve, or the ordinary cycloid curve, etc. In substance, what Lyn discovered was that the minimum-maximum conception of Nicholas of Cusa was related to his isoperimetric principle in a manner such that when you unified the two principles into a single one, you



discovered a most appropriate *higher principle of least action of physical space-time*. It was such a universal physical principle of integration which had remained dormant for more than 550 years, since the death of Cusa, and which is presently changing the whole of history.

Since that principle of least action had been rediscovered and applied only in disparate manners by a few of great minds who lived after Cusa, such as Brunelleschi, Leonardo, Raphael, Roberval, Huygens, Leibniz, Fermat, Bernoulli, Riemann, and Gauss, and that they all have experimented the same discovery in different degrees of realization, it is reasonable to assume that the intermingling of such minds and such ideas throughout history have also been able to change the past, isochronically, in unpredictable ways. However, such intermingling was not sufficient to affect mankind as a whole until today. Now the time has come, when that conception must be universally understood and implemented, if mankind is to have a future beyond the scope of this planet. Let's identify briefly how this idea of isochronicity came into existence in the wake of a number of such historical interventions.

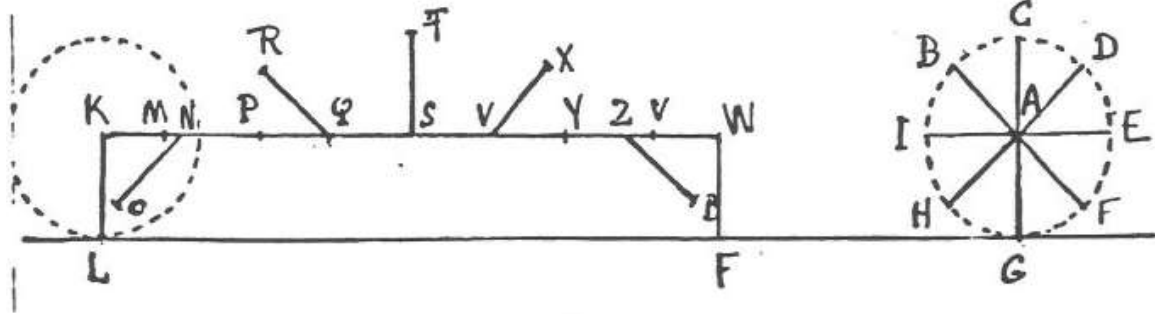
A few years after Cardinal Mazarin had established the Peace of Westphalia in 1648, a new historical change had also taken place in science under the French Royal Academy of Science under the leadership of Huygens, Fermat, and Leibniz. The most significant discovery of the time was the application of the isochronic conception of the cycloid in direct connection with the Cusa principle of minimum-maximum principle of least action. The discovery of the isochronic characteristic of construction of the cycloid was given to the world by a little known professor of constructive geometry, Gilles Personne de Roberval, who was to become known through a provoking contest put before the intellectual elite of the time by Blaise Pascal and which became known as ***PROBLEMS CONCERNING THE CYCLOID, SET IN JUNE 1658***. Roberval was a close collaborator of the Pascals (father and son) and professor of mathematics at the College Royal. However, his position forced him to keep his discoveries on the cycloid secret until after the deadline of the proposed 1658 contest.

The problem of the cycloid, as constructed by Roberval, should have been enough to set the mathematical world on its ear, but the time had not yet come for the scientific world to discover its full significance, including for its discoverer, Roberval.

The significance of the geometric battle caused by the discovery of the curvature of the cycloid first appeared over the difference between analytical and synthetic methodologies; and the outcome was to remain undecided, along with the Cusa discovery, for a few more hundreds of years, until today. The question that arose then, and has been avoided by the scientific community ever since, is if one can truly determine universal change with linear functions. The whole future in the calculus of infinitesimals depended on the answer to that question.

That is the main point to be understood with the revival of the constructive geometrical method of Roberval. How does the constructive method of Roberval reflect a knowledge which expresses the process of creative change in the universe? In other words, how can the Roberval construction of the cycloid reflect the creative-mental process of the human mind? That is what is reflected, negatively, in the reaction of Descartes, two decades before the Pascal challenge, after he had first heard about the existence of this curve. Descartes' October 11, 1638 letter to Father Mersenne is a clear example of the complete rage that such a problem of least action curvature posed to the deductive mind of the time. Descartes wrote:

« You start with an invention of Monsieur de Roberval, respecting the space included by the curve described by a point of the circumference of a circle supposed to roll on a plane; with respect to which, I acknowledge that I have never before thought of it, and that the observation of it is pretty enough. However, I do not see that there is any reason to make such noise about having found a thing which is so easy, and which anyone who knew ever so little of geometry could not fail to find, if he looked for it.” (Lettres de Descartes, Tome III, p. 384, Paris, 1667. Quoted by Homersham Cox, [\*Rudimentary Treatise on the Integral Calculus\*](#), p. 8)



**Figure 3** Roberval describing the doubly-connected motion of the cycloid.

In his 1637 letter to Father Mersenne, Roberval first described the complex motion of the cycloid, and then subsequently, constructed the area under the curve. Roberval wrote:

“In the following figure (**Figure 3**), given a circle with center K and line LF, along which it rolls and ends its rotation (conversion). Now, suppose that the straight movement as well as the circular one be uniform. Then, describe a circle with center A equal to circle K, in a way that line LF touches circle A at point G. Then, draw two diameters GC and IE at right angles and, *per continuum portionum circumferentiae bisectionem*, divide the circumference in any number of equal parts that you wish, (the line will be defined more precisely the more you have parts), let us say eight, for example, at points G, H, I, B, C, D, E, F, and then draw from those points a series of diameters. From center K draw KW equal and parallel to LF, and divide KW in as many equal parts as in circle A by the points K, N, P, Q, S, V, Y, Z, W. From point K draw KL equal and parallel to AG, from point N draw NO equal and parallel to AH, from point P draw PM in the same direction as AI and equal to it, then draw QR equal and parallel to AB, from S draw ST equal and parallel to AC, from point V draw VX equal and parallel to AD, from Y draw YV equal and in the same direction as AE, from point Z draw ZB equal and parallel to AF, and finally from W, draw WF equal and parallel to AG.

“I say that the line described by point L will pass through points O, M, R, T, X, V, B and will end in F. This is the case whether the line is equal or not to the circumference of the circle, such that, if you divide circle A in many parts, you shall find this exact description.” (Roberval Letter to Father Mersenne, January 6, 1637.)

Descartes is a good example of how a deductive mind fails to respond to such a challenge, and therefore, fails to understand the simpler and deeper implications of the discovery. What was at stake was the question of the infinitesimals and the indivisibles; that is, the incommensurable nature between linearity and non-linearity.

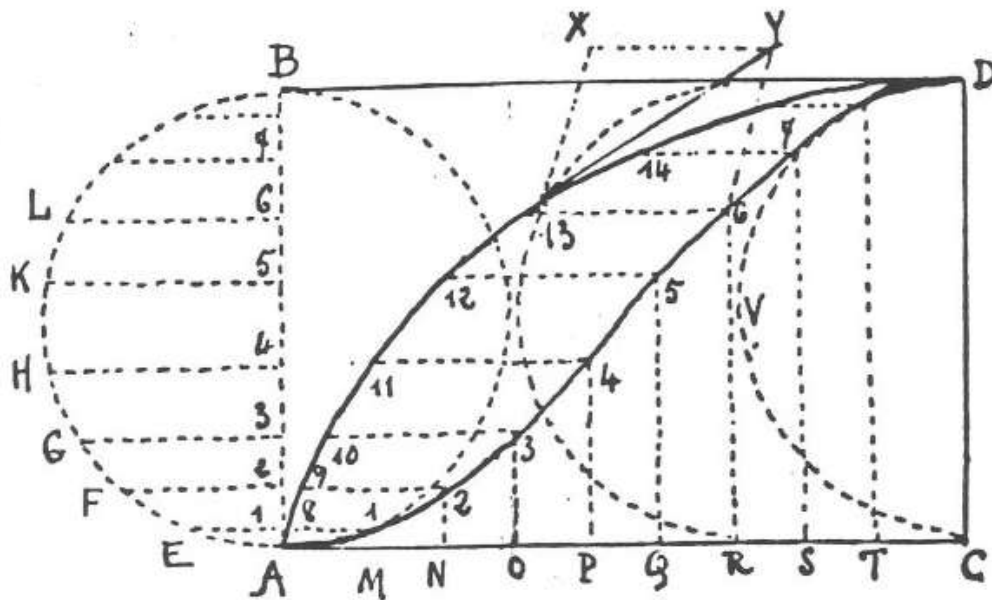
Roberval had discovered a higher constructible dimensionality which was actually able to deal with such incommensurability and was about to give birth to a true integral calculus, but which was not to take place until Leibniz. This is the superiority of Roberval's synthetic method over the analytical Cartesian method. The discovery is similar to that of Cusa with respect to the “*coincidence of temporal successions*”; that is, that the human mind is created to calculate infinities and incommensurables, not linear and finite entities. This crucial axiomatic factor, however, was missed by almost everyone at the time.

The method of “*indivisibles*,” as Roberval called the areas of figures of transformation, is a method by means of which one can transport lines, surfaces, or volumes, be they straight or curved, into different interchangeable areas simply by construction and by demonstrating that they have respectively an infinite equivalent number of parts.

Roberval wrote at the beginning of his “*Treatise on the Indivisibles*” that “in order to draw conclusions by means in indivisibles, it is necessary to assume that every line, whether straight or curved, can be divided into an infinite number of parts, either exactly equal to one another, or following one another in any desired progression such as from square to square, cube to cube, fourth power to fourth power, or according to any other power.” (Evelyn Walker, *Study of the Indivisibles of Personne de Roberval*, Columbia University, 1932.)



Roberval had discovered the method of an elementary form of integral calculus by means of which he could transpose an infinite number of lines from one surface area into another different one without losing or omitting any of their smallest parts, purely by construction, and without any mathematical calculation.



**Figure 4** Constructing the area between the semi-cycloid curve and the semi-sine curve.

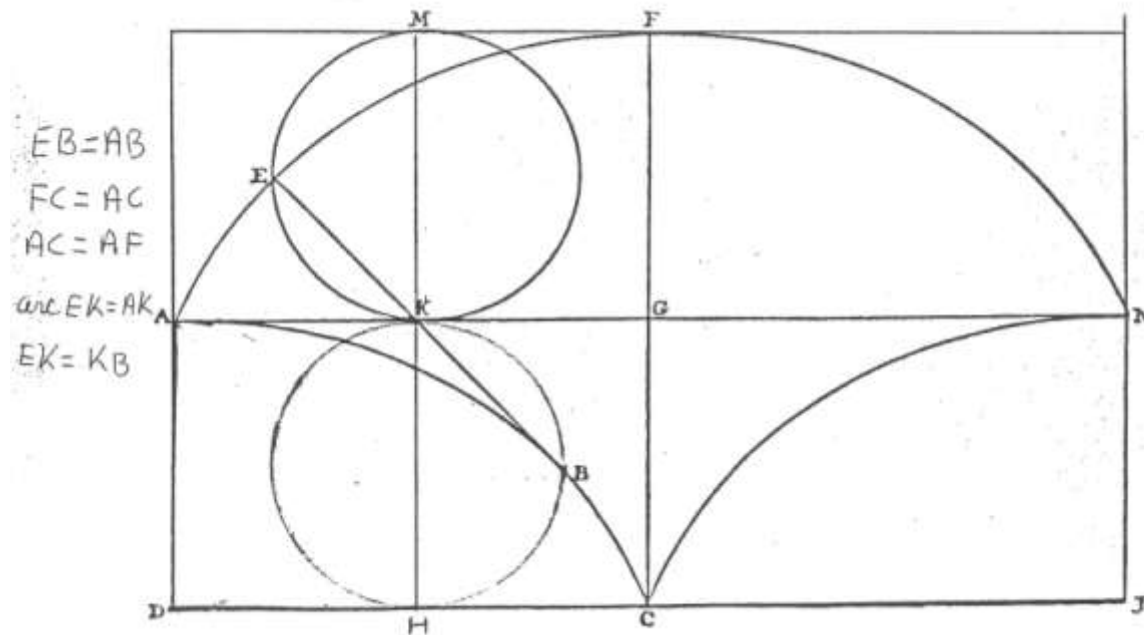
The areas in which these “indivisibles,” as Roberval called them, are transported into can be of any shape, as long as they are closed whole surfaces or volumes. As Roberval further wrote to Father Mersenne in the same letter:

“Line AC (**Figure 4**) corresponds to the half circumference of circle AGB. If you divide the circle into an infinite series of equally spaced intervals, say like AE, EF, etc., then, the rolling of the circle will give you the same series on line AC, such as AM, MN, etc. The rotation of point A will describe the cycloid curve A13D.

“Next, define the sines E1, F2, G3, etc., and transpose them in the same direction to the equivalent points 8-1, 9-2, 10-3, etc., on the cycloid curve. These sines will intersect lines M-1, N-2, O-3 etc., falling perpendicular to the base AC. The intersections of the sine-lines with the perpendiculars generate a new curve, the companion of the cycloid curve, the ‘Roberval curve.’” (Letter of Roberval to Father Mersenne, January 6, 1637.)

The reader can easily discover that the sine-curve A4D divides rectangle ABCD in half. The area of A5DC is equal to the area of the generating circle. The area of A4DVCA is equal to the area of the half-circle CDV. The area of ABD12A is equal to the area of the half circle. Thus, rectangle ABCD encompasses an area of four equal areas of different forms which have the same numbers of infinite lines. From this, Roberval concluded that the area under the entire cycloid curve is three times the area of the generating circle. It was this conclusion which sent Descartes into a furious state, when he replied to Mersenne: “If I were to praise myself for having found such things, it would seem to me that it would be the equivalent of someone who looks inside of an apple which he has just cut in half and would be bragging about having discovered something that no one else but he had ever seen.” (Letter of Descartes to Mersenne, October 11, 1638.)

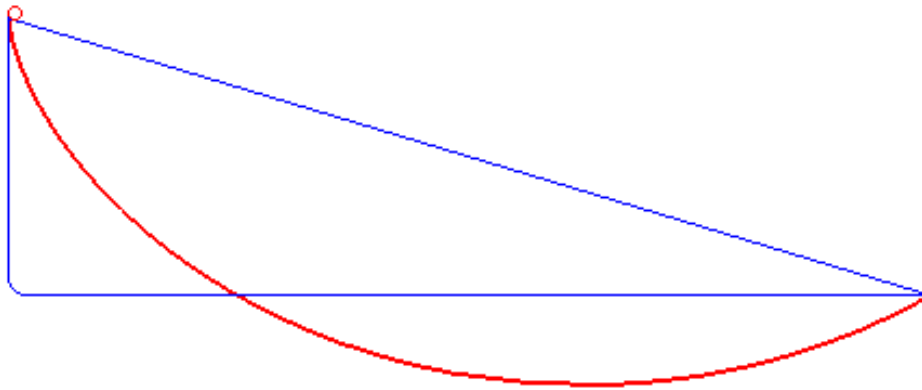
According to Evelyn Walker, the idea of “*indivisibles*” goes back to the Renaissance. As he wrote: “According to Libri, the concept of indivisibles was first used in mathematics by Leonardo da Vinci (1452-1519), in determining the center of gravity of a pyramid by decomposing it into planes parallel to its base. Later Kepler (1571-1630) calculated the ratio of the volumes of certain solids by regarding them as bodies developed from planes.” (Evelyn Walker, *Study of the Indivisibles of Personne de Roberval*, Columbia University, 1932, p. 33.) Thus, the Roberval notion of indivisibles is, in reality, a notion of infinitesimals, or as he called it, his “method of infinities.” The truth of the matter, however, is that indivisibles are not limited to closed equivalent surfaces; they can be transferred to unlimited areas such as caustics envelopes of any size, as demonstrated by the catenary-tractrix.



**Figure 5** Huygens: the evolute of the cycloid is also a cycloid.

The crucial minds involved in the discovery of the cycloid were the following: In 1615, Father Mersenne called the curve to the attention of geometers, but only Roberval took the challenge seriously; between 1628 and 1637, Roberval constructed the area under the cycloid and the sine-curve; in 1658, Pascal investigated the cycloid and launched a challenge across Europe for its construction, but he did not discover anything new about the curve; in 1668, Huygens constructed the evolute of the cycloid and discovered that, since the evolute of the cycloid was also a cycloid, his pendulum pathway was isochronic; that is, it had the same swing period regardless of the amplitude (See **Figure 5**); in 1686, Leibniz determined the equation of the cycloid and establishes the cycloid as the isochronic pathway of least action; in 1697, Jean Bernoulli established that the cycloid curve had quickest time of descent in accordance with the Fermat principle of least time. (See **Figure 6**) Lastly, a wonderful epistemological discovery was made as a result of these investigations during that period; which is, that since the tangent to a cycloid involute is also the normal to another cycloid, Leibniz discovered the method of inversion of tangents as a means of discovering

new curves. See my report: [HOW LEIBNIZ CHANGED THE PAST FROM THE FUTURE.](#)



**Figure 6** The Bernoulli Brachistochrone. See Irene Beaudry's report: [BERNOUILLI BRACHISTOCHRONE](#). See also the following rolling balls experiment: <https://upload.wikimedia.org/wikipedia/commons/6/63/Brachistochrone.gif>

## 5. HOW MIND BECOMES A PHYSICAL CAUSE IN THE UNIVERSE

Negentropy takes hold of the human mind when it willfully assimilates new fundamental discoveries in physical science. However, the key to causality in this process lies in the ability of human minds to make new discoveries of principle; which means, within processes of creative-mental discoveries, as opposed to biological processes or physical processes. As Lyn emphasized: *“Nonetheless, creative-mental activity, unique to humanity among species, is not only the characteristic of human existence, but is a physical cause in the universe generally.”* ([ON ABSOLUTE TIME](#) p. 6) It is the negentropy of the human mind which increases the negentropy of the physical universe.

Once the axiomatics of deductive reasoning are abandoned and this idea of negentropy is recognized as the fundamental hylozoic principle driving the human mind and the universe as a whole, then, one is obliged to also recognize that God has created man in his own image of **CONTINUOUS CREATOR**. This is where



the idea of '*absolute time*' takes a new meaning. Like Lyn said: "The idea of *absolute time* is inseparable from the notion of a God who is a living being engaged in a continuous process of creation. However, it is impossible for deductive reasoning to portray such a God." (Lyndon LaRouche, [ON ABSOLUTE TIME](#) p. 6)

This idea of "*God as continuous creator*" can only be conceived from the vantage point of *performative constructive geometry* in which every part is acting simultaneously on every other part. However, when such a constructive geometry is confronted with the negentropically changing universe as a whole, a problem arises where the *simultaneity of efficient causality* requires a new conception of time. "This higher coherence," writes Lyn, "is the locus of the existence of *absolute time*. The *clock* of *absolute time* is the changing of the ostensibly fixed laws of action within the universe." ([ON ABSOLUTE TIME](#), p. 7) Such is the nature of the *isochronic curvature of absolute time*.

This form of change, however, is not a relative form of change. It is an absolute form of change, which is simultaneous across the universe. The characteristic nature of that higher form of change, reflecting this higher form of universal curvature, is best expressed by the coincidence between God's mind and his Creation, otherwise known as the "*logos incarnate*," as it is called in the Augustinian theology of Christianity. Lyn formulated the same idea in a different manner when he wrote:

"This higher *negentropic* lawfulness is signified by the *logos*. The Being which corresponds to the efficient action of this *logos*, is the living God engaged in continuing the process of creation. This God's clock keeps *absolute time*.

"By *absolute time*, we must signify that which is simultaneous, relative to any relativistic notion of the speed of light determined by the curvature of physical space-time. The effects which are attributable specifically to that curvature, as such, are the simultaneous effects in the universe, as typified by those elementary laws of physics directly adducible

simply from the curvature of physical space-time.” ([ON ABSOLUTE TIME](#), p. 7)

The only accessible method of construction of such a process comes from the Pythagorean-Platonic method of simple circular action and multiply-connected self-similar-spiral-action which was initiated by Greek Spherics and was later pursued by the Italian Renaissance with Brunelleschi, Cusa, Leonardo and Raphael. The same method was later improved on by the first French Royal Academy of Science under Huygens, Fermat, and Leibniz, then, followed by the French Ecole Polytechnique under Monge, Carnot, and Poncelet. The method was then later further perfected by Jacob Steiner and the Gottingen school, culminating into the breakthroughs of Gauss and Riemann. From the vantage point of this series of discoverers, *absolute time*, then, becomes the rhythm of universal change; indeed, because least action change had become the measure of time. It is this performative function which reflects the continuing process of the *logos* in human history.

Therefore, in substance, it is this change of manifold, from the multiply-connected-self-similar-spiral-action to the discrete manifold of simple circular action which establishes the bench-mark-proof of the negentropic principle embodied in constructive geometry. Similarly, it is the same change of manifold which can direct the assimilation of new valid discoveries of principle of mind into determining the physical space-time curvature of the physical universe as a whole. It is the ontological actuality of this negentropic change process, in *absolute time*, which represents real human knowledge, as opposed to the shadow world of sense-certainty which passes fraudulently for science today.

## CONCLUSION

Viewed strictly from the vantage point of epistemology, therefore, ‘*absolute time*’ becomes a necessary notion for unifying the coincidence of the opposites of microcosm and macrocosm, especially as an effect of the *simultaneity of change*

*in the universe.* Lyn opened such a new window beyond what Einstein had already given us in his general relativity. Lyn concluded:

“So, respecting the scale of relativistic actions as implicitly defined by Riemann’s famous inaugural dissertation, the self-bounding of the universe – in the astro-and-micro-physical scales, and in biophysical and creative-mental space-time – is everywhere *relatively* instantaneously efficient. The apparent laws of local action are everywhere subordinated to this *relative* instantaneity. In that sense, already, *relatively* instantaneous action, vastly in excess of the limits of the speed of light, are always occurring throughout the universe, on the astrophysical and microphysical scales. Indeed, the speed of light is but a necessary local condition imposed upon the universe by such relative instantaneity.” (Lyndon LaRouche, [ON ABSOLUTE TIME](#), p. 11)



**Figure 7** The double helical staircase designed by Leonardo da Vinci in 1519 for the Chateau de Chambord in the Loire valley, France.

Then, Lyn asked: “Is God’s clock set to instantaneous time?” His answer was associated with the unknowns of *matter-antimatter* reactions and to the need to rise above human imperfections. As he said:

“Negentropic development is the fundamental characteristic of negentropic principles of least action. This must include the relative absolute curvature of physical space-time as a whole.

“The question posed to physicists thus, is ‘where’ is the manifestation of such ongoing impulse toward general development situated such that we might adduce its efficiency empirically?”

“It is already clear, that the boundary to present empirical knowledge which we must surpass to find empirical answers bearing upon God’s *absolute time* is represented to us today in the perplexities associated with matter-antimatter reactions.” (Lyndon LaRouche, [ON ABSOLUTE TIME](#), p. 11)

The unknown that he speaks of, however, is not so much due to the imperfection of man, as it is due to the fact that antimatter-matter relationships have a chirality relationship which we cannot perceive and which makes the two domains blind to each other. Therefore, Lyn concluded:

“So much can we say of *absolute time*. It exists as a necessary feature of universal physical lawfulness. Much more, we cannot yet say, except to note that God’s clock, which counts absolute time, is running. Nothing then will end the restlessness of the most sensitive scientific minds on this account, until empirical evidence is adduced which has obvious bearing upon this question.” (Lyndon LaRouche, [ON ABSOLUTE TIME](#), p. 12.)

In other words, since the Good transcends empirical evidence and travels faster than the speed of light in order to spread its bounty everywhere isochronically in the universe, Lyn is inviting us to prove this win-win method for ourselves, constructively, by doing something that will grow indefinitely and isochronically for all times to come. All we have to do is to follow the economic principle that Gargantua recommended in his address to the vanquished:

*“Such is the nature of gratuitousness. Time, which gnaws and fritters all things away, only augments and increases the value of benefits because a good turn freely done to an intelligent man grows continuously by his generous thoughts and remembrances. (Francois Rabelais, Gargantua, Gallimard, 1965, p. 385.)*

**FIN**