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## PLATO'S 'GEOMETRICAL NUMBER' FOR SOLVING THE PARADOX OF THE ONE AND THE MANY

For my friend Philip Ulanowsky: How Plato constructed the One and the Many

by Pierre Beaudry, 4/10/2021

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### FOREWORD

In Plato's Book VIII of the *Republic*, there is an important yet cryptic section of the dialogue in which Socrates discusses how to make "constitutional changes" in order to improve the governing principle of mankind. In that section, Socrates identifies, among four other forms of government, the form known as "*Timocracy*", in which those who rule are motivated by wealth, property, ambition, and love of recognition. Plato recognizes that such a form of government eventually self-destructs because of the in-fighting divisions among its greedy rulers.

Today, our nations have a similar problem, because greedy political parties and individuals are robbing people's future by preventing them from accessing the knowledge of new discoveries of principle, such as what Plato required for his time, and which would have political leaders secure peace in the world by preventing their people from degenerating.

In the *Parmenides*, Plato asserts that the way to secure such a knowledge for the future of mankind is through understanding the political epistemology of the axiomatic change between the One and the Many; that is, by mastering the science of how to use what centuries later, Nicholas of Cusa called his method of achieving the *coincidence of opposites* as the means of bringing about the solution to all paradoxes that the human mind may be confronted with.

You are probably going to think that I am crazy for asking you to do this, but what is required to solve the problem of the degeneracy of our present day world is for you to discover the purpose of Plato's "*geometrical number*" as a means of dealing with the problem of mastering the method of the *coincidence of opposites* and of solving the paradox of the One and the Many. That's right; Plato dealt with this question by constructing a mental process for solving paradoxes with the use of elementary Pythagorean geometry. The present report will show you how to replicate this discovery of principle.

### **INTRODUCTION: THE CYCLE OF DEGENERACY OF THE GREEK CITY-STATE CONSTITUTION**

The first four books of Plato's *Republic* are a treatise on the ideal justice for the City-State and for all human beings. Plato counterposed this ideal of perfection with the defective forms of government and the characteristics of the leaders that ruled them. After long digressions that he was pressed into by his interlocutors, Socrates reestablishes the connection with his original subject of justice at the beginning of Book VIII, where he sums up the characteristics of the perfect City-State, and begins to examine the imperfect constitutions of four different forms of government: timocracy, oligarchy, democracy, and tyranny. After demonstrating how each form is the degenerate result of the previous form, Plato explains that however perfect a constitution may be, it is always corruptible, because it is always subjected to the laws of becoming, which is the source of all corruption. The question which Plato investigated is: how to reverse the course of corruption, at what moment and under what circumstance does a form of government become corrupt, and by which alteration will it inevitably begin to self-destruct? Plato acknowledges that, as with fish, the smell of degeneracy always starts from the head. The composition of the ten books of the *Republic* are well ordered in the following fashion:

Book I. The Prelude.

Books II-IV. How justice is defined for the State and for the individual.

Books V-VII. On the coeducation of women and men and the exercise of power by philosophers.

Books VIII-IX. How degeneracy of government is established and how to solve it.

Book X. How bad poets must be excluded as national educators, and how good ones will gain true benefits in this world and the next.

In choosing such an ordering, Plato shows how the progressive degeneracy of leadership in government can always be explained, and he shows how the City-State of his time was ultimately heading toward the worst of all forms of governments, tyranny. Plato locates the source of corruption in the flaws of government leaders, whose discord among each other inevitably leads to the collapse of society as a whole. At that point Plato calls on the Muses to divulge the hidden “*geometrical number*” which contains the hidden solution to this degenerative collapse.

### **THE EPISTEMOLOGICAL CLOSURE OF THE ONE AND THE MANY**

"Human life is sacred, and its increase is not only an expression of the universal law of the universe, but if man fails to bring his willful practice into agreement with that law, then the society so failing becomes unfit to exist, and will collapse, to make way, sooner or later, for one which fulfills the law. That is the Law of Population."

Lyndon LaRouche, [There are No Limits To Growth](#),  
New Benjamin Franklin House, New York, 1983, p. 283.

In the footsteps of Plato, Lyndon LaRouche used the same Socratic method of problem solving, and the same political epistemology, in order to demonstrate how the geometry of transfinite numbers corresponds to the triply-connected physical principle of change in the universe; that is, by discovering a method whereby the human mind is able to develop a concept of the One through axiomatic transformations of higher orders of magnitude, of change, and of motion in the universe as a whole, for the purpose of achieving a higher universal and a more appropriate closure for understanding, what he called, the classical idea of substance in the universe. LaRouche elaborated that method as follows in his book, [Project A](#):

“Simple, discrete matter does not exist, as in the sense of a perceptual discreteness, as an object of touch, as an object divorced from motion. That kind of substance does not exist. It cannot exist in our universe. Secondly, even simple motion cannot exist as something primary in our universe. It does not meet the qualifications of substance in any aspects of substantiality. It is not being, it is not substance. Nor is a rate of change in quality of motion adequate. We have to generalize the notion of a rate of change of rate of change of quality of motion, and then we have, at least verbally, encompassed in a general way the kind of definition of being we require.”<sup>1</sup>

This is the triply-connected motion of the mind that is required for discovering higher geometrical numbers, or new and more powerful ideas, such as transfinite numbers or Platonic ideas; that is, with the effect of increasing the density of power of the human mind through: 1) the action of change, 2) the action of the rate of change and 3) the action of the rate of change of the rate of change, all for the purpose of increasing the growth of human population. This triply-connected epistemological function represents the method by means of which Plato, Cusa, and LaRouche have gone into higher geometrical numbers to establish the appropriate ontological level for accomplishing the next step of humanity's progress in scientific investigation and in artistic composition. As LaRouche said:

“We get into larger geometric numbers, as Gauss does. We get into the so-called imaginary and complex numbers, which are not really imaginary, and which are quite clearly classes of geometric numbers. They tend to fill up the gaps in between, leftover in-betweennesses not filled in by all inferior sorts of numbers. So, a general notion of number arises, not from particular experience, but by trying to approach universality by the method of successive transfinite orderings. So, hard proofs and strong proofs all involve universality.”<sup>2</sup>

From this Platonic standpoint, my intention is to examine the principle behind the Platonic notion of the One with respect to the Many by means of what

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<sup>1</sup> Lyndon LaRouche, *Project A*, EIR, Vol. 17, No. 41, October 26, 1990, p. 62.

<sup>2</sup> Ibidem, p. 61. <https://larouchepub.com/eiw/public/1990/eirv17n41-19901026/index.html>



has been identified as “Plato’s number” and “The Nuptial Number.” I refer specifically, to the “*geometrical number*” that Plato discusses in *Republic*, VIII, (546b-d), without identifying what it is, and which has long been for both translators and scholars alike a big headache and a major source of disagreement over the very nature of Plato’s intention in that cryptic section of his dialogue. It is, in fact, both amusing, yet a very serious puzzle to be resolved, performatively, as an actual puzzle of poetic creative thinking.

The poetical irony of this segment of Plato’s *Republic*, corresponds to what Jacques Cheminade identified during the third session of the Schiller Institute/ICLC conference: [\*\*THE WORLD AT A CROSSROAD\*\*](#), on Saturday, March 20, 2021, when he said that imperialist thinking corresponds to a “divided mind” such as the one of former President Francois Mitterrand when he stated: “What I think, what I say, and what I do are three different things.” The only way that your mind can free itself from such imperialism and be truthful is to do everything you think and say. In Plato’s view, this means the assembling of the Many in as many different lawful arrangements as can be done, into a One, and in such ways that the results of all of those different processes end up being always the same, no matter how many times it takes to achieve that goal.

What Plato is doing with his “*geometrical number*” is not a mystical/mathematical explanation for the origin of the world or for explaining the tragedy of the political human condition. Invoking the Muses is merely a device that Plato uses for identifying the failures of government and its different forms of timocracy, oligarchy, democracy, and tyranny. The strategic problem that Plato had to solve in his time was the Thucydides trap; that is, the strategic danger of mounting tensions which build up in the world, when an old declining power seeks to create a conflict with a new emerging power. We have a similar problem today, with the failed Anglo-American imperial power which is more and more desperate in its confrontation with Russia and China. Thus, as Socrates said, the characteristic type of leader that is unfortunately appealed to for the government of timocracy is the

one who is “inclined to be violent and simple-minded, rather more suited for war than for peace.” (Republic, VIII, 548a)<sup>3</sup>

After the first stage of perplexity passed, and allowing for a higher respect for Plato’s ability to apply his Socratic method of political epistemology to a degenerating strategic situation, I realized that what he was looking for was the original principle of generation of a higher universal creative process, among other things, the spherical principle for generating the Five Platonic Solids, *a transfinite spherical geometry of knowledge* that citizens and political leaders of all times need to learn in order to improve the conditions for the establishment of constitutional republics everywhere on this planet, and, surprisingly, a triply-connected method of commanding the universe in such a way that it obeys human commands. That universal question is the moral purpose of Plato’s *Republic*.

When you examine closely how the universe governs itself, you discover that our three dimensional universe is constructed on a multiply-connected circular action bringing closure upon itself, inside of which, the first motion is up and down, the second moves from left to right, and the third one moves forward and backward. These are the six directions which form the hexago-spherical unity of physical space-time that we live in. Although such a complex motion cannot be changed, there is no doubt in Plato’s mind that it can be mastered and improved upon.

Raphael generated a variant of such a hexago-spherical process for *The School of Athens* and *The Dispute of the Holy Sacrament*, starting from the

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<sup>3</sup> In one of those rare occasions, Wikipedia has an insightful note on the character of the Timocratic leader. Under the rubric, “Plato’s five regimes”, the writer notes: “The governors of timocracy value power, which they seek to attain primarily by means of military conquest and the acquisition of honors, rather than intellectual means. Plato characterizes timocracy as a mixture of the elements of two different regime types — aristocracy and oligarchy. Just like the leaders of Platonic aristocracies, timocratic governors will apply great effort in gymnastics and the arts of war, as well as the virtue that pertains to them, that of courage. They will also be contemptuous towards manual activities and trade and will lead a life in public communion. Just like oligarchs, however, they will yearn for material wealth and will not trust thinkers to be placed in positions of power. Timocrats will have a tendency to accumulate wealth in pernicious ways, and hide their possessions from public view. They will also be spendthrift and hedonistic. Because their voluptuous nature will not be, like that of philosopher-kings, pacified in a philosophical education, law can only be imposed onto them by means of force.”

elementary diagram of the Star of David.<sup>4</sup> This hexago-spherical measure is also, according to the *Republic*, the measure that Plato used for evaluating the Constitutional State of Athens that Socrates described as being subjected to a cyclical “*geometrical number*” whose periods of progress is capable of determining the future of mankind, without being affected by degeneration. But, unfortunately, mankind still suffers, alternatively, from periods of growth and of degeneracy, throughout the centuries.

Knowing full well that the destruction of a State always comes from the incompetence of its own rulers, Plato, nevertheless, seems to be attributing the human state of degeneracy to a cycle of fate. However, from the vantage point of political epistemology, the nature of this periodicity of progress and of degeneration is what the mind is also capable of understanding and resolving by adopting the following triply-connectedness form of human thinking and deliberation.

The geometrical projection involved in this state of affairs is such that the change of the first two motions can be perceived on the same plane (up and down plus left and right), as if it could exist without the third motion which can only be examined in depth (back and forth). However, it is depth which brings to the body its third dimension, and therefore, its very existence. In reality, if this third back and forth motion is missing, the other two must inevitably collapse. Curiously, it is this last motion which must include the dimension of time (past, present, and future); that is to say, a third degree of amplification which includes the characteristics of change among the micro, conventional, and macro dimensions.

That is also how the Platonic universe is constructed as a One which determines the Many; the explanation of which can be found in a very difficult, but profound, section of *Republic, Book VIII*, in which Socrates located the generating principle of Plato's “*geometrical number*” in the following manner:

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<sup>4</sup> See my last report: [RAPHAEL'S CONSTRUCTION OF THE COINCIDENCE OF OPPOSITES IN 'THE SCHOOL OF ATHENS'](#).

“Finally, Glaucon, I replied, let me try to explain how Timocracy<sup>5</sup> came out of Aristocracy. Is it not a self evident truth that every change in a State’s constitution comes from those who govern it, when the division seizes upon its leading members? However, as long as the State is in harmony with itself, as weak as this harmony may be, it is impossible to undermine its foundation.

I agree with you, he said.

Therefore, Glaucon, I continued, how can our State be destroyed and how can discord insinuate itself among the guardians and the magistrates and arm these bodies against each other, and against itself? Shall we, like Homer, invoke the Muses to tell us how factions fell upon them in ancient times, and that by making them play with us, as with children, we give them the power of speaking spuriously the language of tragedy?

How so?

Somewhat like this: It is difficult to change a State’s constitution like yours; however, since everything that is generated is subject to corruption, your constitution cannot also last forever; so, let me show you how it can be undermined. There are, not only for plants rooted in the Earth, but also for the souls and the bodies of animals, who live on its surface, alternate periods of fecundity and of sterility. These alternating periods occur when the periodical revolution closes the cycle in which each species evolves, short cycle for species with short life-span, and long ones for those that live longer.

So, as for the human species, those individuals you have elevated for the purpose of guiding the State will not be able, in spite of their abilities and their enhanced reasoning experiences, to tell the difference between the

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<sup>5</sup> Timocracy is an ancient Greek form of government in which rulers were property owners who were motivated by ambition and the desire to be recognized. This form of *land aristocracy* was introduced by Solon in his Constitution for Athens as a form of graded oligarchism giving rights and privileges to property owners in accordance with the number of bushels a man could produce in a year. The idea of self-destruction appears in *The Laws*, 683e which states: “When a monarchy or any other form of government gets destroyed, is it not itself the cause of its own destruction?”



moments of fecundity and those of sterility; these moments will escape them and they will be generating children at a time when they should not.

*“As for divine generations, the period of gestation required involves a perfect number<sup>6</sup>; however, for generations of human beings, on the contrary, it is the smallest number in which a number of multiplications takes place between the dominating and the dominated<sup>7</sup>, progressing according to three intervals and four terms<sup>8</sup>, finally reach the results, in the end by all means of assimilation and dissimilation, by increasing and by decreasing, and by ultimately establishing, among all of the parts of the whole, an expression of reasonable correspondence. The basis of these elements, the four-three part (epitrite) joined with five, when multiplied three times gives two harmonies: one expressed by squaring a squared number multiplied by one hundred, the other by a rectangle built on the one hand on one hundred squares of rational diagonals of five, each reduced by one unit, or of irrational diagonals, reduced by two units; and, on the other hand, on a hundred cubes of three.” [Emphasis added]*

[Here is the original Greek text of the previous paragraph.]

*[Ἐστὶ δε θείῳ μεν γεννητῶ περιόδος ἦν ἀριθμὸς περιλαμβάνει τέλειος, ἀνθρωπείῳ δέ [γεννητῶ] ἐν φ πρώτῳ αὐξήσεις δυνάμεναί τε καὶ δυναστευόμεναί τρεις ἀποστάσεις, τέτταρας δε ὀρους λαβουσαι ὁμοιούντων τε καὶ ἀνομοιούντων καὶ αὐζόντων καὶ φθινόντων, πάντα προσήγορα καὶ ῥι,τα πρὸς ἀλλήλα ἀπέψηναν | ὧν ἐπίτριτος πυθμὴν πεμπάδι συζυγείς δύο ἄρμο νίας παρέχεται τρις αὐξηθείς, | τὴν μεν ἴσην ἰσάκις, ἑκατὸν τοσαυτάκις, | τὴν δέ ἰσομήκη μεν ἠί, προμήκη δέ, ἑκατὸν μεν ἀριθμῶν ἀπο διαμέτρων ρητῶν*

<sup>6</sup> According to Plato's *Timaieus*, God reserved for himself the divine order of things and left to the mortals the task of taking care of human affairs. Unless government leaders apply appropriately the “geometrical number” (the principle of change) assigned to them by God, they will cause their constitutional state to fail and humanity will degenerate.

<sup>7</sup> In the language of Pythagoras, the « dominating » side of a right triangle refers to the hypotenuse, while the « dominated » were the other two sides. See the French report by Marc Dekinger, [\*L'énigme du Nombre de Platon et la Loi des dispositifs de M. Diès\*](#). In: *Revue des Études Grecques*, tome 68, fascicule 319-323, Janvier-décembre 1955. pp. 38-76.

<sup>8</sup> In musical terms, these three intervals and four terms can be expressed by the Lydian divisions of the welltempered octave, such as C, Eb, F#, A.

πεμπάδος, δεομένων ἑνος ἐκάστων, ἀρρήτων δε δυοῖν> εκατόν δέ κύβων  
τριάδος. ]]

It is the dynamic of this geometrical number as a whole which has the virtue of commanding good and bad births; and when, failing to recognize this principle of generation, your guardians bring brides and bridegrooms together unseasonably, the offspring will not be wellborn or fortunate. Among these children, their predecessors will choose the best to lead the State; but since they are not worthy of the task, as soon as they will take up their father's duties, they will begin to neglect the people in spite of their responsibility as guardians, failing to estimate as they should the value of music and subordinating it to gymnastics. Thus, you will get a new generation which will be less educated than the previous one, which will give us magistrates who are incompetent in their role as guardians and who will be incapable of differentiating among you the races of Hesiod, or the differences between golden and silver souls from those of bronze and steel souls. And, since steel will be mixed with silver and bronze with gold, the result will be such that equality, justice, and harmony will be lacking everywhere and everywhere this happens, you will always get hatred and war." (*Republic*, VIII, 545c9-547a6)<sup>9</sup>

Plato invoked the Muses to elaborate this amazing geometrical puzzle with the aim of provoking the reader into a profound reflection. You have every reason to find this puzzle difficult, because it is meant to be a real epistemological challenge. In essence, Plato initiated, here, an investigation into an elementary form of transfinite geometry in which he is demonstrating that, in order to be a true guardians of the City-State, the political leaders must know how the mind is required to investigate the axiomatic transformation of people's minds, using the change between plane geometry and solid geometry as a means of attaining their

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<sup>9</sup> For this difficult geometrical section, I have used the translation by Auguste Dies from [LE NOMBRE DE PLATON](#), Essai d'exégèse et d'histoire. In: Mémoires présentés par divers savants à l'Académie des inscriptions et belles-lettres de l'Institut de France, Première série, Sujets divers d'érudition. Tome 14, 1e partie, 1940, pp. 1-141. The rest of the text is my own translation and adaptation from Emile Chambry's translation of *The Republic*. All of the American and British translations of *The Republic* I have consulted failed to understand the full epistemological value of this puzzle.

goal. This is why Plato's "*geometrical number*" is such a paradoxical task and such an epistemological test of endurance for the reader. So, bear with me and let's examine the underlying political epistemology behind it.

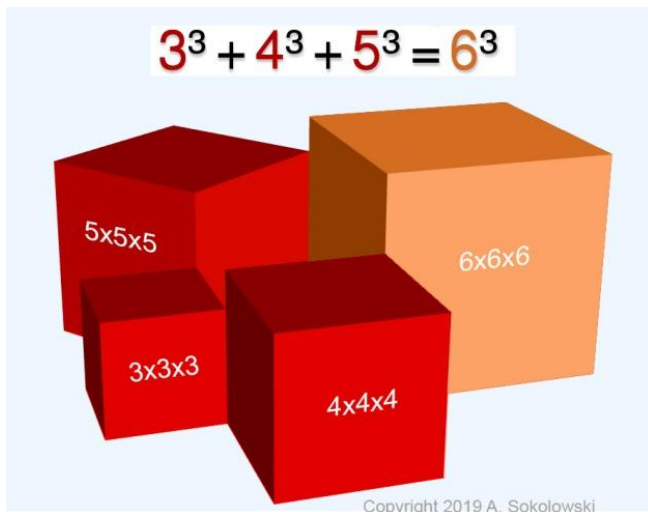
The value of this "*geometrical number*" is not given by Plato, nor does he provide you with any geometrical illustration for constructing it. He leaves you to your own devices, and lets you figure out what needs to be constructed by yourself, in order to let you discover the nature of the epistemological effect of change its geometrical construction has on you, personally. In other words, it is not the number in itself or its geometrical form that matters; it is rather the mental pathway of how to discover its construction and its future purpose that counts.

The crucial clue to start from is the following: The hypotenuse of the right triangle is the one that "dominates" the two other two opposite sides; and the one that is "dominating" is equal to the sum of the squares of the two "dominated" ones. That is the *coincidence of opposites*. Here, there is a jump to be noted between the two "*dominated*" sides of the right triangle, and the "*dominating*" third side, the hypotenuse. The name "*dominating*" means that the hypotenuse is transfinite to the other two sides. The epistemological significance of this clue is that the Pythagorean triplet is the most elementary geometrical form of bringing a unity of closure between two opposites.

The model for this kind of right angle triangle is the (3, 4, 5) triangle and its multiples, which are (3 x 4 x 5) (3 x 4 x 5) (3 x 4 x 5) (3 x 4 x 5) representing the "*three intervals and four terms,*" as Plato wrote. The result of this process, as illustrated below, is the production of a series of four cubes, the last of which holds the key to the minimum number that Plato wanted us to find in order for us to be able to construct his "*geometrical number.*" In other words, Plato is talking about generating three dimensional solids from a two dimensional plane, which is an axiomatic change, or a paradigm shift.

The minimum that Plato uses to express his "*geometrical number*" of changing manifold is the well known Pythagorean triplet (3, 4, 5), which is also known as the cosmic triangle (*κοσμικὸν τρίγωνον*), because it gives closure to the perfect growth principle of doubling a surface area by squaring, as he explained in

the *Meno* dialogue, and as can be demonstrated by the *Pythagorean Theorem* where  $3^2 + 4^2 = 5^2$ . However, Plato chose to transform this Pythagorean triplet for a higher purpose; that is, for the purpose of generating four three dimensional solids, notably, four cubes:  $3^3 + 4^3 + 5^3 = 6^3 = 216$ . But, he does not identify a specific number.



<https://blog.world-mysteries.com/ancient-writings/philosophy-ancient-writings/plato-ancient-wisdom-philosophy-sacred-numbers-5040-216/>

There are no mysteries to these numbers. They simply reflect the remarkable geometrical characteristic of a process of composition that Pythagoras used in order to represent metaphorically the original growth principle formation of the universe, which Plato developed in order to

demonstrate how to go beyond the doubling of the square to a higher transfinite domain of increasing the size of a series of elementary three dimensional cubes. Is this not a predecessor to the transfinite idea that LaRouche talks about?

The most fascinating thing about this geometrical composition is that the limit to the process of growth derives from a hexagonal number:  $6^3 = 216$ . However, this number, 216, is not a magic number, rather, it is the minimum number required to discover the geometrical process of solving the paradox of the One and the Many. In fact, Plato was projecting the geometry of an *axiomatic change* between the second and the third dimensions of geometrical space, for the purpose of discovering who among the youth would be disposed to become golden souls. As you will see in a moment, this is a test of endurance which is most rewarding.



Such an examination into hexagonal-cubical geometry is similar to what Raphael portrays in his *The School of Athens*, where Bramante and a group of young boys are constructing the Start of David. That is in the same spirit as the Delian problem of doubling the cube that the ancient Oracle of Delphi had issued as a challenge to put an end to the plague that was decimating the Island of Delos during the fourth century BC.<sup>10</sup> You may consider the following construction as a similar challenge to put an end to the present Covid-19 pandemic.

### CONSTRUCTING PLATO'S 'GEOMETRICAL NUMBER'

Since our reach must always exceed our grasp, we should not be surprised, therefore, if the progress of knowledge beyond these first steps were to escape us, at least for a short period of time; but, we may find, at the end of the process, a completely new way of looking at things. First of all, let's construct the first part of the geometrical statement where Socrates said:

*"...it is the smallest number in which a number of multiplications takes place between the dominating and the dominated, progressing according to three intervals and four terms, finally reach the results, in the end by all means of assimilation and dissimilation, by increasing and by decreasing, and by ultimately establishing, among all of the parts of the whole, an expressible reasonable correspondence." (Republic, VIII, 546b)*

First, Plato simply used the (3, 4, 5) Pythagorean "growth principle" to represent a general process of generation; this can be found by using this combination:  $3^3 + 4^3 + 5^3 = 6^3 = 216$ , as a minimum, and  $(3 \times 4 \times 5)^4 = 12,960,000$ , as a maximum. Those are the two limits of the geometrical boundary conditions that Plato established for his axiomatic experiment. Here, Plato implies a series of variations of the same Pythagorean triplet (3, 4, 5), including their different combinations and multiplications. For example, the hexagonal cube  $6^3 = 3^3 + 4^3 + 5^3 = 216$  is the minimum, and  $(3 \times 4 \times 5) (3 \times 4 \times 5) (3 \times 4 \times 5) (3 \times 4 \times 5) = (3 \times 4 \times 5)^4 = 12,960,000$ , is the maximum; both represent, in fact, the "three intervals and the four terms." Secondly, let's construct the second part:

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<sup>10</sup> See my report: [THE GALACTIC TIME-REVERSAL SOLUTION TO AN AXIOMATIC CHANGE.](#)

*“The epitrite basis of these elements, the four-three part joined with five, when multiplied three times, gives two harmonies: one is expressed by squaring a squared number multiplied by one hundred, while the other is constructed as a rectangle built, on the one hand, with one hundred squares of rational diagonals of five, each reduced by one unit, or built, on the other hand, with irrational diagonals, each reduced by two units; and with a hundred cubes of three.”* (Republic, VIII, 546c)

The epitrite basis (3, 4, 5) multiplied three times is simply  $(3 \times 4 \times 5)^4 = 12,960,000$ . The first harmony which is *“expressed by squaring a squared number, which is multiplied by one hundred,”* can be discovered as being  $(36 \times 100)^2 = 12,960,000$ . This result can also be gotten by multiplying  $(3 \times 4 \times 3) (3 \times 4 \times 3) (5 \times 4 \times 5) (5 \times 4 \times 5) = (36 \times 36) (100 \times 100) = 12,960,000$  or by  $60 \times 60 \times 60 \times 60 = 12,960,000$ , that is, 60 to the fourth power. The form can also be rectangular, such as  $1,296 \times 10,000$ , which is also the rectangular equivalent of  $3,600^2 = 12,960,000$ .

The second harmony: *“a rectangle built, on the one hand, with one hundred squares of rational diagonals of five, each reduced by one unit, or built, on the other hand, with irrational diagonals, each reduced by two units; and with a hundred cubes of three.”* One example of such a rectangle:  $(3 \times 3 \times 3) (5 \times 4 \times 5) (4 \times 3 \times 4) (5 \times 4 \times 5) = (27 \times 100) (48 \times 100) = (2,700 \times 4,800) = 12,960,000$ . Plato could have gotten the same result with  $(4 \times 4 \times 4) (5 \times 3 \times 5) (3 \times 3 \times 3) (5 \times 4 \times 5) = (4 \times 75) (27 \times 100) = 4,800 \times 2,700 = 12,960,000$ .

This second harmony is a little more difficult to establish, because it involves the square root of fifty ( $\sqrt{50}$ ). Why 50? Because  $50 = (3^2 + 4^2 + 5^2)$ . The process of construction is as follows: The *“irrational diagonal of five”* is the diagonal of a square which is  $\sqrt{50}$ . The *“rational diagonal of five”* is the closest whole number to the *“irrational diagonal”*, which is  $\sqrt{(50 - 1)}$ . Therefore the total of a hundred squares with *“the rational diagonal of five, each reduced by one unit”* is:  $100(49 - 1) = 100 \times 48 = 4,800$ . Now, let's see where this comes from.

First, each of those squares must be reduced by one rational unit, which gives us 49, whose root is 7. Thus, 7 is the closest rational root of 50. The sum of the three sides of the triangle (3, 4, 5) corresponds (in length) to 12, which is the

paradigm for the daily cycle of time, for the musical system of equal-tempering notes, and for the partitioning of the ten circles which generate the paradigmatic sphere of the five Platonic solids. This square root of fifty, which comes from  $50 = (3^2 + 4^2 + 5^2)$ , is, therefore, the locus of a most significant transformation, as no other number we have seen. As a power, the transfinite mixture of five and six (or ten and twelve), which creates number 50, shows that the surface is a transfinite power higher than the power of a simple length, just as the volume of the solid is a transfinite power higher than the area of the surface. That is a double transfinite, isn't it?

Thus, each of the hundred squares with side 7 will be  $100(7 \times 7 - 1) = 100(49 - 1)$  or  $100 \times 48 = 4,800$  which is the value of the long side of the rectangle you are looking for. Another way to get at the same result is where each of those squares is reduced by two rational units, which give  $100(50 - 2) = 100 \times 48 = 4,800$ , also the long side of the rectangle as above. Thus, we have two different ways of getting at the same result.

As for the shorter side of the rectangle, we should calculate that the “*hundred cubes of three*” is:  $100 \times 3^3 = 100 \times 27 = 2,700$ , which is the value of the small side of the same rectangle whose total area will again be 12,960,000, which generates Plato's maximum. Is there any reason to doubt, now, that 216 is the minimum and 12,960,000 is the maximum with respect to the same geometrical process of transformation?

Finally, those two different harmonies of the same product, 12,960,000, that is, the product of a square and the product of a rectangle, reflect the age of man and the age of the universe which, when divided by 360 days in the perfect year, comes to 36,000 years. Here, Plato adopts an inspiring vision of the microcosm and the macrocosm whereby, if the ideal lifespan of a human life is to be a 100 years, as he claims in *Republic X*, (615b1), then,  $360 \times 36,000 = 12,960,000$  days which represent 36,000 ideal years. This means that the day of the human and the year of the universe are connected with each other. Thus, a proportion between the cosmos and the human mind is established according to which the macrocosm and microcosm are related to such a mixed degree that the universe may be considered

to be a large human mind within which the individual human mind is actually a small universe. This is a most fascinating way to look at the One and the Many.

It should become clear, after all of this, that Plato was searching for the originating principle of the five regular solids as well as a method for doubling the cube, but what he discovered above all is that when the human mind obeys the laws of change of the universe, it can also rule the universe and command the universe to such a degree that the universe will have to obey, as LaRouche indicated. On the other hand, if the human mind does not obey the laws of growth of the universe, the human species will degenerate and self-destruct. Thus, the irony whereby the galactic species and the human species are the only two species in the universe which can grow indefinitely, based on the same universal principle of mutual inclusion, is the all-inclusive principle that all nations of the world need to discover today in order for mankind to survive as a species. Isn't that what LaRouche meant when he wrote:

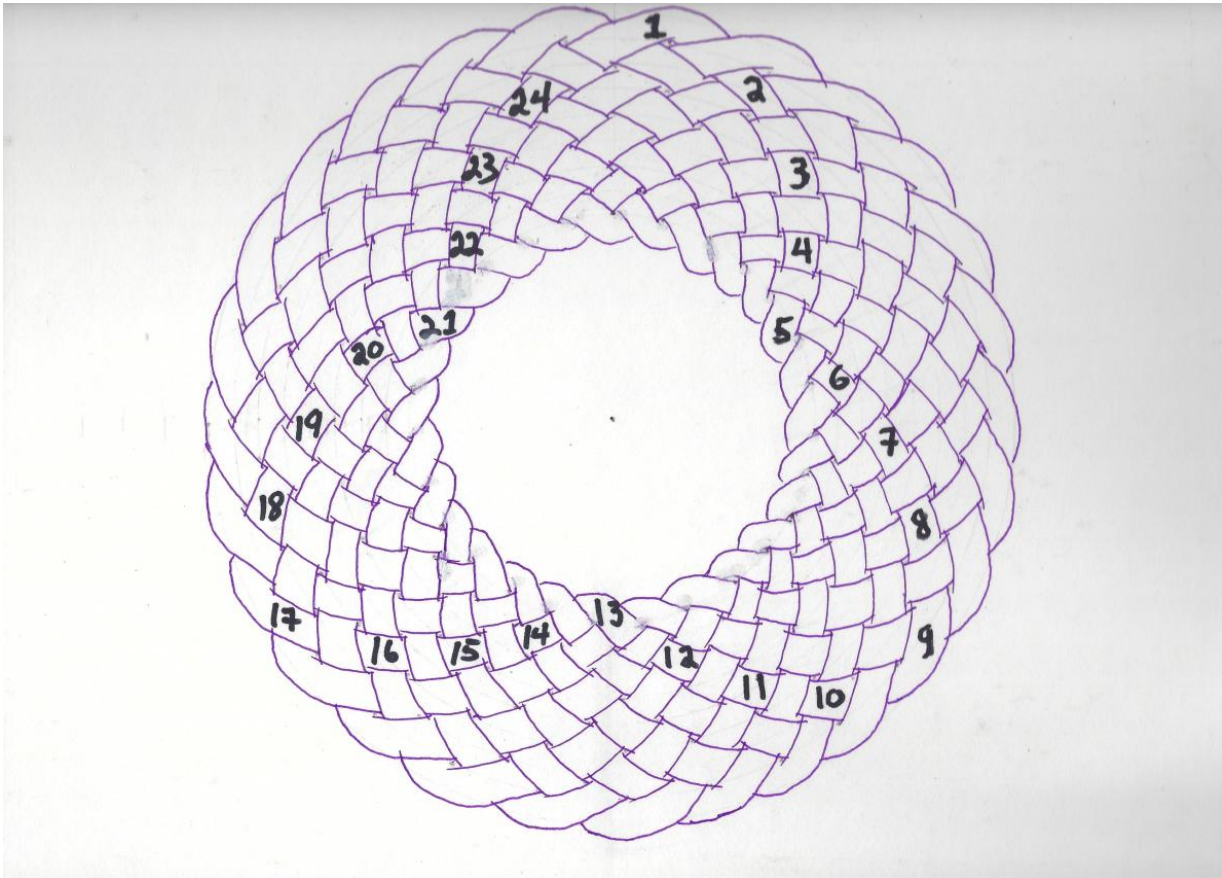
“Well, typical of those kinds of acts that we make--which we can prove, the universe will *obey*, otherwise the universe won't obey them--are actions which conform to the discovery of a universal physical principle. If you can discover a validated, universal physical principle, and you can give that, as an order to the universe, the universe will obey. Man is the only creature that can do that! That can formulate an order, called a universal physical principle, validate that discovery, and issue that discovery as *an order, a command*, to the universe, and the universe is compelled to obey.”<sup>11</sup>

This should take care of the Malthusian policy which continues to plague our planet.

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<sup>11</sup> Lyndon LaRouche, [\*STORM OVER ASIA, TAKE TWO: I TOLD YOU SO, AND NOW IT IS HAPPENING\*](#), EIR, Vol. 27. No. 36, September 15, 2000, p. 35-36. Otherwise, as Plato wrote about a similar discovery of principle: “As long as the sphere of the heavens and the sun continue to move round, everything in heaven and earth will keep going, but if they were to be tied down without motion, everything would fall apart and the universe would be destroyed, as they say, in a universal revolution.” (*Theaetetus*, 153d.)





Torus of 9 cycles of 24 hours (with 3 intervals of 8 each) for a total of 216 hours.

Another way to master this method is with torus geometry. For example, ask yourself: can Plato's minimum and maximum numbers 216 and 12,960,000 come out of a 24 hour cycle? The answer is not obvious. The clock must be a three dimensional torus in which the cycle is based on a toroidal value of 27 and a poloidal value of 9. As a result of such a P/T ratio of 9/27, the nine cycles of 24 hours (with 3 intervals of 8 each) are equal to 216 hours, and when the clock is wound for a period of 1,500 ideal years, it chimes for 12,960,000 hours.<sup>12</sup>

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<sup>12</sup> One might go as far as to say that Plato chose 25 to be the perfect age for a man or a woman to have children, since 25 years x 360 days x 24 hours x 60 minutes = 12,960,000 minutes? But, then again, the hour of 60 minutes did not exist at the time of Plato.

## PLATO'S PARMENIDES: THE ONE AND THE MANY

The previous epistemological-geometrical section was only an exercise for the purpose of whetting your appetite. In the *Parmenides* dialogue, Plato presents an even higher difficulty by showing the limitations of the logical investigative method of dialectics by reaching to a higher transfinite level of the mind by having it go through an axiomatic change beyond the limit of the *coincidence of opposites* of logical deduction.

Plato uses the One as the universal principle of the Good to generate everything; however, if the oppositions derived from the contradictions of the One and the Many are to be resolved, it will not be with regards to some transcendental mystery, but by the hard work of a transfinite ordering process of higher hypotheses that Plato may have been the first in history to examine rigorously with a dialectical method of political epistemology.

The most difficult part of the *Parmenides* dialogue is the second and last part, which begins at 137a and ends at 166c, where the old Parmenides chooses to have the youngest among a group of four, Aristotle, respond to him and give him short pauses giving him just enough time to reflect. This part is the most difficult because it calls upon the reader to make a transfinite leap and to discover the existence of the higher mental domain of investigation that Plato is looking for.

Plato omits the psychological dramatization that is usually found in his other dialogues, and chose to develop a rigorous geometrical and epistemological drama reflecting his own mental transformation throughout the following nine hypotheses:

HYPOTHESIS I: If the One is one, what are the consequences? (137a-142a)

HYPOTHESIS II: If the One is, what are the consequences? (142b-155e)

**HYPOTHESIS III: If the One is and is not, what are the consequences? (156a-157b)**

HYPOTHESIS IV: If the One is, what are the results for others? (157b-159b)

HYPOTHESIS V: If the One is, what will others not be (159b-160b)

HYPOTHESIS VI: If the One is not, what are the consequences? (160b-163b)

HYPOTHESIS VII: If the One is not, it has no determination (163b-164b)

HYPOTHESIS VIII: If the One is not, what will others be (164b-165e)

HYPOTHESIS IX: If the One is not, what are the negations for others (165e-166c)

I have written **HYPOTHESIS III** in bold characters because this is the crucial one among the series of nine hypothesis; it is the most dramatic, because it hypothesizes the *coincidence of the opposites* at the same time that it causes an axiomatic change to take place in the mind of the reader. The paradoxical nature of the hypothesis is the axiom buster of the entire dialogue, but it is barely noticeable to the young Aristotle. Most translators have stumbled and broken their necks over this third hypothesis; some have even ignored it entirely.

The stumbling block is that **HYPOTHESIS III** requires that a transfinite leap be made by the reader over the fact that something cannot “logically” pass over from non-being to being, nor from being to non-being, and still remain itself and something else at the same time; or remain in the same state of shock of a “*sudden instantaneousness*,” as Plato identified it, after the change has been accomplished. And yet, that transfinite leap can be made by any normal individual who accepts to make the change and who accepts in his heart the real purpose for the change (*agape*), the benefit of the other. Let us patiently examine together the entire two pages of this difficult passage. Parmenides said:

“Let’s repeat our examination under a third form. As our deductions have proved it, if the One, on the one hand one and many, and on the other hand, neither one nor many, is otherwise partaking of time, is there not for the One, because it is One, a moment in which it does not participate at all in being?”

Yes, necessarily.

Therefore, will it be possible for it not to participate in being at the moment of participating; or to participate at the moment of not participating?

This is not possible.

Because the time when it participates is different from the time when it does not participate; that is the only way for it to be able to have or not to have any participation with any given reality.

You are right.

Therefore, there must be a time when it possesses being and another time when it leaves it, because how could there be, in fact, a moment when it possesses being and a moment when it does not, if there isn't a moment when it acquires it or it loses it?

That would never be possible.

Partaking of being, is that not what you call being born?

Exactly.

And to quit being, isn't that dying?

Yes.

It appears, therefore, that when the One assumes a state of being and leaves that state, it is born and it dies.

Necessarily.

Isn't it the case, therefore, that being One and Many, being born and dying, its birth as a One is its death as Many, and its birth as Many is its death as One?

Absolutely .

But becoming One and Many, isn't that for it to be separated and to be unified?

Yes, in all rigor.

And becoming similar and dissimilar, is that not assimilating and dissimilating.



Yes.

Becoming greater, smaller, or equal, is that not increasing, decreasing, or being equal to itself?

Obviously.

But, being moved, becoming immobilized; being stable, being in motion; all of this can only be done in an instant when it is not in any time.

What do you mean?

To be unmoving in a first moment and, a moment later, to be moving; first to be in motion, and the next moment, to be at rest; it is not without changing that the One can acquire these different states.

That is obvious.

But, there doesn't exist a time when a same being could, simultaneously, be neither moved nor unmoved.

Certainly not.

Nevertheless, even changing cannot be done without changing.

Probably not.

Then, when does it change? It is certainly not when it is unmoving or when it is moved; and it is not either when it is in time.

Indeed not.

Will it not be in some strange state that it will be in, at the moment it changes?

Which strange state is that?

*A sudden instantaneousness (exaiphnes) (ἐξάιφνης). That is, in fact, what seems to be the meaning of instantaneousness; the sudden starting point between two inversed states of changing directionality. Because it is not*

*from the non-moving immobility that change is able to surge; nor is it from the motion moved by the transition of the change. It is rather in the strange nature of the sudden instantaneousness (exaiphnes) (ἐξάιφνης) an inbetweenness which, located out of time in the interval between mobility and immobility, is precisely and simultaneously the point of departure and the point or arrival for the change which passes from mobility to rest and from rest to mobility.*

*That has every chance to be true.*

*Thus, since the One is both in an immobile state and in motion, it will have to change in order to go from one state to the other: it is only under this condition, in fact, that it can compose with both states. That is, this operation of change can only take place in a sudden instantaneousness (exaiphnes) (ἐξάιφνης); and while it changes, it cannot partake of any moment of chronological time, no more than it could be moved or be unmoving. [Emphasis added].*

Undoubtedly.

But, is it the same thing with other kinds of changes? When the One operates a change from being born to dying, or from non-being to being born, does it not find itself in an interval of inbetweenness different from other sorts of motions and rest, and is it not either in the state of being or of none-being, or in the one of being born or of dying?

This, at least, seems probable.

Therefore, by the same token, when the One is in the process of going from the One to the Many, and from the Many to the One, it is neither a One nor a Many, it is neither divided nor united. Similarly, for its passing from similar to dissimilar and from dissimilar to similar, it is neither similar nor dissimilar, neither in assimilation nor in dissimilation. Whether it goes from the small to the large and to the equal, or conversely, during that time, the One will neither be small, nor large, nor equal, neither increasing, decreasing, nor becoming equal.

This is probable, at the very least.

There you have the results to which the One will be subjected to, if it exists.

Without a doubt.” (*Parmenides*, 155e4-157b3)<sup>13</sup>

Here, Plato has achieved a transfinite level of thinking which Cusa identified as realizing a *coincidence of opposites*, through the mental state of “*intellectualiter*”<sup>14</sup> as opposed to “*rationaliter*” and that LaRouche might have identified as the transfinite process of higher hypothesizing of an axiomatic change.

Plato is pushing the mind of the reader to the limit by describing a state of sudden (*exaiphnes*) in-betweenness, the interval of time reversal moment where an axiomatic change takes place inside of the human mind; that is, a non-linear moment of transition specific to an axiomatic expulsion of past disfunctioning postulates and axioms, which results in the mind freeing itself from its underlying assumptions about itself, nature, and God

Here, Plato exceeded the logical capability of reasoning of the reader by asking him to abandon his deductive-linear thinking; that is, the point at which reason itself must abandon its deductive proclivity and let the intellect transcend reason to a higher transfinite level; a level such that the locus of inbetweenness of time reversal leads to the *coincidence of opposites* between past and future by being neither in the presence of the coming future and neither in the moment of losing the present to the past, but in some sort of non-time and unchanging moment of eternity.<sup>15</sup> LaRouche might have called this a moment akin to the experiment of

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<sup>13</sup> Platon, *PARMENIDE*, Texte établi et traduit par Auguste Dies, Paris, Société d'Édition “Les Belles Lettres”, 1974, Parménide, 156a-157b. English translation by P. B.

<sup>14</sup> I prefer to use “*intellectualiter*” as opposed to “*intellectually*” which does not carry the meaning of Cusa, which is that “*intellectualiter*” is a transfinite level higher than “*rationaliter*.”

<sup>15</sup> Philip Ulanowsky reminded me that in his Aesthetical Letter 12, Friedrich Schiller developed an equivalent notion of universal transfinite time for artistic composition, as Plato did in his *Parmenides* (155e-157b) for the benefit of scientific investigation. Schiller wrote: “Feeling can only say: this is true *for this person* and *at this moment*, and another moment, another person may come to withdraw the assertion of the present sensation. But when once thought pronounces: *that is*, it decides forever and aye, and the validity of its pronouncement is vouched for by the personality itself, which defies all change. Inclination can only say: that is good *for your individuality* and *for your present need*, but your individuality and your present need will be swept away by change, and what you now

*physical simultaneity of eternity* in which the human mind is able to experience a form of time which is not logical or chronological, but which reflects universal connotations of supra-temporal change and of no-change at the same time; a *simultaneity of eternity*, a moment of universal truth such as was captured by Raphael in *The School of Athens*, *The Dispute of the Holy Sacrament*, and *The Transfiguration*.

## CONCLUSION

The only reason why such an axiomatic change might not reach a state of completion would be if the mind refused to accept the challenge to make the required lawful transformation. The difficulty, of course, is that no logical mind can accept that state for itself without abandoning the deductive-logical prerogative that it claims to be its mantra; that is, without leaving behind all forms of sense perception and of deductive logic in order to take the risk of becoming creative in the way that Cusa identified at the level of *intellectualiter* as opposed to *rationaliter*. And, that is the whole point that Plato is getting at with the *Parmenides* as with *The Republic*.

We have, here, the crucial turning point in which, if you wish to secure the future of mankind as a whole, you must eliminate all of your wrong deductive underlying assumptions. Such a moment is easy to grasp but difficult to decide, because nothing in your mind will be the same after it has been transformed by time reversal, that is, after the decision to change has been taken; yet, the identity of the mind will have remained unchanged and free. This change/no-change state

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ardently desire will one day become the object of your abhorrence. But when the moral feeling says: *this shall be*, it decides forever and aye – when you acknowledge truth because it is Truth and practice justice because it is Justice, you have turned a single case into a law for all cases, and treated one moment of your life as eternity. When, therefore the formal impulse holds sway, and the pure object acts within us, there is the highest expansion of being, all barriers disappear, and from being the unit of magnitude to which the needy sense confined him, Man has risen to a *unit of idea* embracing the whole realm of phenomena. By this operation we are no more in time, but time, with its complete and infinite succession, is in us. We are no longer individuals, but species; the judgment of all spirits is expressed by our own; the choice of all hearts is represented by our action.” Friedrich Schiller, *On THE AESTHETIC EDUCATION OF MAN*, In *A Series Of Letters*, Frederick Ungar Publishing Co. New York, 1965, p. 66-67.



of transformation that Plato called “*sudden instantaneousness*” (*exaiphnes*) comes with the flash of a new discovery of principle, which is only the beginning of a series of transfinite leaps into the future through which the human mind is capable of accomplishing the impossible. That is the road that Aristotle refused to take, because he refused to abandon logical deductive reasoning that he had mastered so well.

Ultimately, what Plato demonstrates with the One and the Many is that no matter how difficult, no matter how long the road may be, or how many road-blocks you may have to avoid or jump over, in order to get where you are going, if you follow the lawful transfinite ordering of the composition of the universe, you cannot get lost and the Universe will obey your command. You will always ultimately be able to make things change and grow, you will always be able to attain your objective, and you will always be able to get back to the One you started from. That is the Platonic epistemological road of policy making that is required for today.

Depending on what you do or don't do, the result will always be the same: if the leaders of your nation take that epistemological road, your population will grow; if your leaders don't take it, your population will self-destruct. It all depends on you, and that will always be decided by your mastering of Plato's “*geometrical number.*”

**FIN**

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## APPENDIX

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### STORM OVER ASIA, TAKE TWO: I TOLD YOU SO, AND NOW IT IS HAPPENING<sup>16</sup>

by Lyndon H. LaRouche, Jr.

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Well, typical of those kinds of acts that we make--which we can prove, the universe will *obey*, otherwise the universe won't obey them--are actions which conform to the discovery of a universal physical principle. If you can discover a validated, universal physical principle, and you can give that, as an order to the universe, the universe will obey. Man is the only creature that can do that! That can formulate an order, called a universal physical principle, validate that discovery, and issue that discovery as *an order, a command*, to the universe, and the universe is compelled to obey.

That is the means, the accumulation of these principles, which are part of our technological culture, is the means by which mankind has been able to increase the life-expectancy, to improve the demographic characteristics of populations, and, in general, to increase man's power, *measurable power, in and over the universe, per capita and per square kilometer*. That's the great, scientific experiment.

We are able to *do* this, not only through physical experiments, through physical discovery: We're able to do this, by discovering higher levels of methods of social cooperation, through which, we're able to cooperate in fostering these kinds of discoveries, and applying them.

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<sup>16</sup> Lyndon LaRouche, [STORM OVER ASIA, TAKE TWO: I TOLD YOU SO, AND NOW IT IS HAPPENING](#), EIR, Vol. 27. No. 36, September 15, 2000, p. 35-36.

So, those things, those are the kinds of actions, which the universe acknowledges to be *man's willful actions of significance*. Everything else that man does is on the level that any lower form of animal life can accomplish.

So, therefore, the kinds of action which distinguish a human being from lower forms of animal life, is that, and only that.

Now, look at this question of strategy, which I've introduced here, from that standpoint: Strategy should mean, once we've understood these lessons--which, presumably, we had learned from study of European history, since the time of Solon and Plato. Say, what's important? What is strategy?

The purpose of strategy is to defend the human species, to improve its condition, to improve its well-being, to improve its power in and over the universe at large. That's the purpose of strategy.

In order to do that, we must promote scientific discovery, and utilize it. We must promote those discoveries of principle, such as artistic principles, which enable us to cooperate, in more advanced ways, to utilize these physical discoveries, for man's benefit. What we, therefore, require, is forms of society, in which we perpetuate the rearing of our children, and our institutions, in such a way, that this mission of mankind, implicit in our nature, is fulfilled.

Thus, we fight to defend this idea of progress. We fight to defend and improve forms of society, which promote progress. We fight to undermine, and nullify, those forms of culture, and political and social systems, which are the enemies of progress. The significance of the United States is that it was produced as a product of a certain phase in European civilization, coinciding with the 15th-Century Renaissance, centered in Italy. It struggled to create a form of society, in which the only legitimate authority awarded to government, was the responsibility and power, to promote the general welfare of *each and all persons*. That is, to promote progress, in that sense.

In this process, during that century, the policy was adopted, of having self-governing, modern, sovereign nation-states, whose authority to rule, was located in the commitment to progress so defined. *Against that*, we had an opponent. The

opponent was forces of bestiality: Those, who see a few people, as the power to *use as human cattle, the majority of other people, other nations, and subject populations, generally*. This is called, oligarchy.

So, the forces of progress, and the nation-state, are pitted against the forces of oligarchy. In the same way that the idea of free trade, of globalization, today: *These are the enemy*.

Because, without the nation-state, without protection of the form which only the nation-state can provide for an economy to *ensure* progress, can we have progress. Those who propose to *liquidate* the nation-state, that is, to globalize it (or globularize it); those who propose free trade, rather than fair prices to protect the process of production of food, and other things upon which life depends: *These are the enemies* of civilization.

Since its establishment in 1714, the British Empire has emerged as the chief proponent of a system of oligarchism on this planet. The United States was created, in order to provide a fulcrum of opposition to those forces of globalization--that is, Roman Empire-style--represented by the British monarchy.

And, it is that fight, which defines it.

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