

LIFE WITHIN THE NOÖSPHERE



NASA/MSFC

What Is the Human Mind?

by Lyndon H. LaRouche, Jr.

January 1, 2008

A commentary on the accompanying LaRouche Youth Movement articles on analog vs. digital, which takes the argument further to consider how the universe is organized for creative human intervention.

*The LaRouche Youth Movement (LYM) has just recently published a widely circulated defense of human beings, a defense against what can be fairly portrayed as an intended takeover of the Earth by what are, avowedly, virtually de-humanized, digital “pod people” types, such types as may be found in Silicon Valley. That LYM documentation has been provided in both a mass-circulation pamphlet issued in November,¹ and two complementary articles on the same subject-matter, published in the January 4, 2008 edition of the intelligence news weekly **EIR**.²*

1. [Is The Devil in Your Laptop?](#) LaRouche PAC, November 2007.

2. Cody Creighton Jones, “How Wiener Attempted To Kill Science”; Sky Shields, “What, Exactly, Is a Human Being? Analog, Digital, and Transcendental” In **EIR** Vol. 35, No. 1, 2008, Jan. 4, 2008 [and in this issue of *21st Century*].

A typical day in the Noösphere: Astronaut Rex J. Walheim at the International Space Station in April 2002, where he and fellow astronaut Steven L. Smith released the locking bolts on the Mobile Transporter and rewired the Station’s robotic arm

The crucial, underlying feature in those published reports, has been the defense of the role of the analog-like functions of the actually creative human mind, against that virtual alien occupation of our planet which is being attempted by digitally motivated creatures who seek to organize a real-world emulation of the infamous Hollywood role played by Arnold Schwarzenegger as "The Terminator." Sky Shields's defense of humanity against this evil, his piece entitled, "What, Exactly, Is a Human Being?", which was published in the January 4 *EIR*, came directly to the point of this crucial issue of science on which the LYM's published evidence against Silicon Valley robots pivots.

Shields's contribution identified some crucially typical forms of the creative mental processes by means of which we can effectively demonstrate the intrinsic incompetence of the digitalized, "pod-people" mentalities of the same type as Silicon Valley cases. He does this, by demonstrating the ontological actuality of what should be recognized as any true universal physical principle, such as the Leibniz-Bernouilli principle of any competent notion of the mathematical-physical calculus.

What he has accomplished there, has cleared the way for a crucially important, additional step to be taken into still deeper matters, as I specify in this present report. That step now answers two, existential kinds of political questions:

1.) What, speaking with an eye on Genesis 1, is the relevant nature of the developed human individual, as absolutely distinct from the beasts, which this kind of potential power of the human mind expresses;

2.) What, then, is the nature of the organization of our universe, that it accepts the guidance of successfully willful interventions of this type from the human individual mind?

On this account: I, personally, first recognized what human creativity is not, by the time I had left the classroom on the first day of a mid-1930s, secondary-school's introductory class in Euclidean geometry. I knew then, from encounters with construction designs examined during my earlier visits to Boston's Charlestown U.S. Navy Yard, that the only valid geometry is a physically efficient geometry, rather than a merely idealized one, such as that of Euclid.

Therefore, a competent geometry must be a *physical geometry*, which must be defined so, without any Euclidean or other Sophist's *a-prioristic* mumbo-jumbo added. It must be defined, by experimental modes of setting of physical standards of construction and experiment. As part of my own personal revolt against the relevant academic sophistry which I encountered at that time, I filled up several notebooks with excerpts from, and notes on my study of those works of Gottfried Leibniz available to me from both my family household's bookshelves and the Lynn, Massachusetts Public Library, as part of my escape from the Sophistry of Euclid and his like.

Back during the U.S.A.'s 1920s and 1930s, the more customary, pathological definition of "true," was "popular." This did not

require a believer's copying the particular opinion adopted by this or that person, or grouping. In my observations then, and later, it meant, typically, a commitment to premise whatever one chose to believe, using certain current standards for a usually accepted type of explanation for whatever it were that one chose, liberally, to profess to believe, whether in schoolrooms, or otherwise, or, *whether the advocate actually believed his, or her own argument, or not.* In other words, it was an echo of the same *Sophistry* by which the ancient Athens of Pericles had destroyed itself through the Peloponnesian War.

In my experience in this matter, no actual requirement of truthfulness was actually required for such cases, then or in the general practice in our republic today. In place of actual truth, popular convention substituted that slimy word "sincerity," especially when respect for the authority of a usually lying mass-media, or of a high-ranking element of the judiciary might otherwise be in doubt. Even if what were said was an outright lie, "You have to respect the assumption of that man's claim to have spoken with sincerity." It is insisted that if a lie may be caused to appear to be more "plausible" by standards of popular opinion or something like that, we are told that we must show respect for the feelings of the liar, and must thus embrace the lie, and damn the truth.³

Thus, in those past times of my adolescence, and later, still today, the clause, "It is self-evident that . . .," as might have been borrowed from a Sophist such as Euclid, was among the most popular academic and related hallmarks of the typical popular (and populist) sophistries of those times. Unfortunately, prevalent trends in habits of opinion-shaping among most putatively educated people, have tended to become worse since those times about seventy years ago.

I confess, that I never liked Sophists. From the time which I have referenced, above, as the occasion of the classroom encounter with Euclidean geometry, for example, on to the present day, I have never accepted the ontological presumptions of a Euclidean or related sort of *a-priori* geometry, neither a Cartesian analytical geometry, nor a differential calculus premised on those Sophist's axiomatics typified by what was expressed by the circles of a Leonhard Euler or an Augustin Cauchy.

That experience of mine acquired new dimensions, by way of my encounter with an advance review copy of Professor Norbert Wiener's *Cybernetics*, approximately sixty years ago, during the first quarter of 1948. This was my first encounter with what I recognized as the pervasive Sophistry in the work of MIT's Professor Norbert Wiener (a personal disciple of Bertrand Russell): Wiener's posing the preposterous assumptions which he and his devotees have called "information theory." By early 1953, these and related experiences with the views of Bertrand Russell, Norbert Wiener, John von Neumann, and their devotees, had impelled me to become a persuaded and vigilant follower of the

3. When the mightily respected parson died, and his tattered old pulpit Bible was examined, it was noted that many passages in the old man's Bible were marked by a scrawled note: "Text unclear; shout like Hell!"



How do we know man is capable of knowing how the universe is designed? In the 15th Century, Leonardo da Vinci overturned the generally accepted view of linear perspective. Here, his 1473 drawing of the Arno landscape. Leonardo drew up plans for canals to make the river navigable.

mightily refreshing, central conception of Bernhard Riemann's 1854 habilitation dissertation, a commitment which, it may be fairly said, I have retained to the present time.

Hence, to illustrate the nature of the crucial issue underlying the subject of Sky Shields's presentation, I begin this present report of mine, by pointing to the exemplary case of what Albert Einstein affirmed as having been Kepler's uniquely original discovery of a principle of universal gravitation.⁴ I include some repetition of a report which my relevant associates and I have stated, and restated, during a number of scientific meetings and other occasions over the course of the recent three decades; that repetition is still required, as here, today, since the crucial facts of the case are not yet widespread common knowledge, even among those ostensibly trained in physical science.

What Sky accomplished in that *EIR* report, has been to present those immediately most relevant, correct principles of sci-

entific method which prove his Classic case conclusively: the profound incompetence, for all scientific practice, of the practice of substituting linear digital methods for the required analog ones.

That leaves two crucially important, deeper question to be addressed at this juncture: a.) As Leonardo da Vinci overturned the presumed, axiomatic authority of linear perspective, on what basis could we assume that man is capable of actually knowing how the universe is designed, that beyond the scope of a generally accepted description of what most sincere believers do not actually know? b.) How could man prove that we are capable of having practical knowledge, that existing only in domains beyond merely generally accepted opinion, of how the universe actually works.

1. The Birth of Modern Science

Modern science was that born, in fact, during the middle to late Fifteenth Century A.D. It first appeared then, chiefly, as the intersection of the work of the inventor of the modern application of the catenary function to the practice of physical sci-

4. Better known is Einstein's scientific refutation of the methods of Russell et al., during the proceedings of the Solvay conferences: *God does not cast dice in the universe*. Einstein's later emphasis on Kepler's role, is less widely circulated today, but was just as firmly, and also more precisely stated.



Library of Congress

Nicolas of Cusa (1400-1464)



Johannes Kepler (1571-1630)



Gottfried Wilhelm Leibniz (1646-1716)

The founders of modern European science, who built on the the science of the ancient Greeks.

ence, the polymath Filippo Brunelleschi,⁵ and the founding of the general form of modern physical science by Nicholas of Cusa's *De Docta Ignorantia*. There is a precise connection of this pair of discoveries, by Brunelleschi and Cusa, to the evidence which Sky Shields provides in the pages of the January 4, 2008 *EIR*.

However, in speaking of the founding of modern European science, it would be systemically misleading, to say that this was actually the original founding of what should be recognized as European science for today. The known foundations of competent forms of today's specifically *modern* European science, had been first established as European science, essentially, during Europe's Fifteenth Century; but, this occurred as a revival of what had been already the most essential principles of the ancient European science whose origins are to be traced from ancient Greeks. A European science whose ancient origins are to be traced, specifically, from Thales, and from the practice of the principles of *Sphaerics* among such followers of Thales as the Pythagoreans and Heracleitus, and, also, from Plato and his personal followers of the Academy, through, and slightly beyond the work of Eratosthenes.⁶

The common feature shared by the ancient European science of the Pythagoreans and Plato, with the modern science

of Cusa, Kepler, Fermat, Leibniz, and Riemann, et al., is the same "analog principle" of physical geometry now known as the ontologically *infinitesimal*, best known today as what Shields, among other members of the LYM scientific teams, has pointed out as the catenary-related *analog* principle of the Leibniz-Bernouilli calculus (*universal physical least action*).

The root of Shields's referenced argument is located, for its broader implications, within the historical context of that Classical set of scientific references.

That notion of the *physical infinitesimal*, itself, as it had been presented in modern physical science by Kepler's successive, uniquely original discoveries of the principle of gravitation,⁷ had been already introduced to modern physical science, and to Kepler's knowledge of it, by Nicholas of Cusa's exposure of the systemic error of Archimedes' effort to define the generation of the circle by quadrature.⁸ That is an error which also permeates the utter incompetence of the so-called Newtonian "calculus," an incompetence which continued to be shared, in its most essential features, among the Eighteenth-Century opponents of Leibniz's discovery, such as Le-

5. Brunelleschi's use of the catenary (the "hanging chain" principle) for the construction of the cupola of the famous Santa Maria del Fiore Cathedral of Florence. It is the catenary principle which determines the specific form of the cupola.

6. Although there were some partial revivals of ancient European science at times prior to the Fifteenth-Century Renaissance, from the time following the deaths of Eratosthenes and Archimedes, there was a general moral and scientific decadence in European culture under the rise of the Roman Empire, Byzantium, and the domination of Europe by the medieval tyranny of Venetian usury and its Norman ruffians.

7. The first, was the discovery of the principle of the Earth's orbit, in Kepler's **The New Astronomy**; the second was the measurable principle of gravitation within a harmonically ordered Solar System, in **The Harmony of the Worlds**. The published LYM reports on both of these, are the only known, competently elaborated, current studies of these matters of Kepler's original work. See the LYM site (www.wlym.com) for authentic references.

8. The same knowledge from Cusa is implicitly expressed in some of the work of avowed Cusa follower Leonardo da Vinci; but, avowed Cusa follower Kepler was the first to make this the explicit basis for all competent practice of modern physical science. This discovery by Cusa was turned up, from among Cusa's sermons, through the efforts of the Cusanus Gesellschaft's Fr. Haubst.



Carl Friedrich Gauss (1777-1855)



Bernhard Riemann (1826-1866)

onhard Euler and Joseph Lagrange, as also by such Nineteenth Century hoaxsters as Laplace, Cauchy, and such among those of their followers as the Clausius, Grassmann, Kelvin, et al., who launched the hoax of a so-called "Second Law of Thermodynamics."⁹

Leonhard Euler's Hoax

For example:

Leonhard Euler is the only notable figure among the Eighteenth-Century opponents of the Leibniz calculus who can be suspected of the competence to know with certainty that what he wrote about the calculus was a willful fraud.¹⁰ Those others also to be regarded customarily as the originators of the hoax, such as Abraham de Moivre and D'Alembert, had shown no relevant competencies in the actual scientific issues, whereas the Euler, who had been a student of Jean Bernouilli, knew that what he wrote on that matter in 1761, and later, was a fraudulent representation of the clearly stated intention of both Leibniz and Bernouilli's statements of the principle of physical least action.¹¹

9. These were notably relevant precedents for the more radical frauds spawned by Ernst Mach, Bertrand Russell, and such followers of these as the Twentieth-Century radical empiricists Norbert Wiener and John von Neumann. Cf. Cody Creighton Jones, *op. cit.*

10. See my January 1990 remarks on this subject, as presented, with supplementary documentation in Appendix XI "On Euler's Fallacies," in my **The Science of Christian Economy** (Washington, D.C.: Schiller Institute, 1991), pp. 407-425. The reference there is to letters written by Euler in 1761, and published, in English translation, in a collection by David Brewster (New York: Harper & Bros., 1840).

11. The origin of the issues which became the subject of the 18th-Century debate over the calculus, was the ancient solution for the Delian paradox, the successful construction of a doubling of the cube traced to Plato's friend, the Italian Pythagorean Archytas. Modern, Sixteenth-Century attention to this ancient matter, as by Cardano and his followers, introduced the modern issues of cubic and biquadratic algebraic functions in an attempted algebraic form. However, the Eighteenth-Century defenders of the incompetence of both Descartes and Newton, such as de Moivre, D'Alembert, Euler, and Lagrange, claimed to have proven their case against Leibniz, by simply accepting de Moivre's proposal that they agree to denounce what they termed, fraudulently, as "imaginary" roots of the

The issue of the calculus, as predefined by Cusa, Kepler, Fermat, and by Leibniz himself, is that a universal physical principle not only bounds the observed events of the universe, but that this occurs in a fashion which *implicitly* defines the thus-bounded universe as finite, as Albert Einstein was to emphasize this implication of Riemannian physics. **No part of the action which is effected within the bounds of the subject of that principle, contains, formally, in digital-mathematical terms, the principle which causes it.**

No (digital) formal-mathematical description of the trajectory of a principled form of action, such as gravitation, contains the principle itself within it. It is only the replication of the experience of the

relevant crucial experiment itself, which proves the validity of a claim for a universal physical principle.¹² Hence the requirement for "analog methods."

Therefore, whereas, the effect of the principle's action is clearly manifest empirically, the principle itself (e.g., gravitation) is a not confined by the subordinated domain (the orbital pathway) upon which it acts. Therefore, as Sky Shields presents the case, the apparently ontological connection of the principle to the subsumed action, can only be estimated as a point of contact which is ontologically (not spatially) infinitesimal at each and all point-intervals which might be adopted. Ontologically, the principle controls the action, but the action does not control, and does not contain the principle at that, or any other point: hence, gravitation as such is expressed as an absolutely (e.g., inherently) infinitesimal mode of action.

That is the underlying principle of the work of such followers of Cusa and Kepler, as Leibniz and Riemann (for example). It is also, methodologically, the key to the genius of Academician V. I. Vernadsky and Albert Einstein.

Hence, on the basis of such evidence, as Shields illustrates this point, we must go a step further, to say, that no derivatives of digital methods could ever encompass the action which corresponds to a true universal physical principle.

That is the one and only actual meaning of the use of the term *infinitesimal* by Leibniz. Euler knew this fact from

relevant cubic and biquadratic functions.

In his doctoral dissertation on the subject of what he later named the Fundamental Theorem of Algebra, Carl F. Gauss actually exposed the swindle by Euler, Lagrange, et al. Despite that, the fraud by Leibniz's adversaries persists as standard mouthings by the empiricists and positivists, down through Cauchy, Clausius, Grassmann, Kelvin, and by the devotees of Bertrand Russell, Norbert Wiener, John von Neumann, to the present day. The substitution of digital, for analog functions, has been a willfully malicious echo of the fraud of de Moivre et al. The vicious attacks on Kurt Gödel at Princeton, attacks which were motivated as defenses of Gödel's 1931 proof of the hoax of Bertrand Russell's **Principia Mathematica**, are highly relevant on this account.

12. This is known to the LYM teams as the "Basement" method.

Jean Bernouilli's published, well-documented representations of the work of himself and Leibniz. Furthermore, the notion of least-action itself, as proposed by Leibniz, reflected, as by Leibniz's explicit emphasis, the notion of least action introduced by Fermat, as that fact was also well known to Euler. Furthermore, the notion of both the calculus itself, and of the challenge of physical-elliptical functions, had been proposed to future mathematicians by Kepler; there was never any margin of opportunity for a competent scientist of the Seventeenth or Eighteenth centuries, taking these matters of background into account, to make an "honest" mistake in respect to the ontological content of the subjects to which such terms had referred.

How & Why Cauchy Faked the Calculus

In the method common to the work of the leading Pythagoreans, Plato, Cusa, Leonardo da Vinci, Kepler, Leibniz, and Riemann, the integrable infinitesimal represents the existence of a higher principle of action, as in the case of Kepler's uniquely original discoveries in the matter of gravitation, and Leibniz's defining of the calculus.

The effect of the reductionist's method of cutting away what Leibniz defines as the infinitesimal, transforms the conception of physical space-time to the effect of implying a universe characterized by asymptotic universal entropy. (Like the man who removes his genitals as a way of denying the existence of future generations, and thus employs the ruined organs as tools for other forms of entertainments.)

If one accepts the argument, respecting the calculus and modern algebra generally, which is common to de Moivre, D'Alembert, Euler, Lagrange, Laplace, and Cauchy, the outcome must be exactly what we encounter in the dogma of Clausius, Grassmann, Kelvin, Helmholtz, and the curiously disgusting aspects of Maxwell, Ernst Mach, Bertrand Russell, and their devotees. The so-called "Second Law of Thermodynamics," when presented as a universal law, was always a hoax of a literally Napoleonic enormity, which was a spectacular model to be promoted by a man of his size.

The time came when the Emperor Napoleon Bonaparte, the former protégé of the Robespierre brothers, and a Martinist freemason whose personality had been re-designed for him personally by Savoyard Count Joseph de Maistre, had been shrunk to a chuckle in the throat of the British Foreign Of-



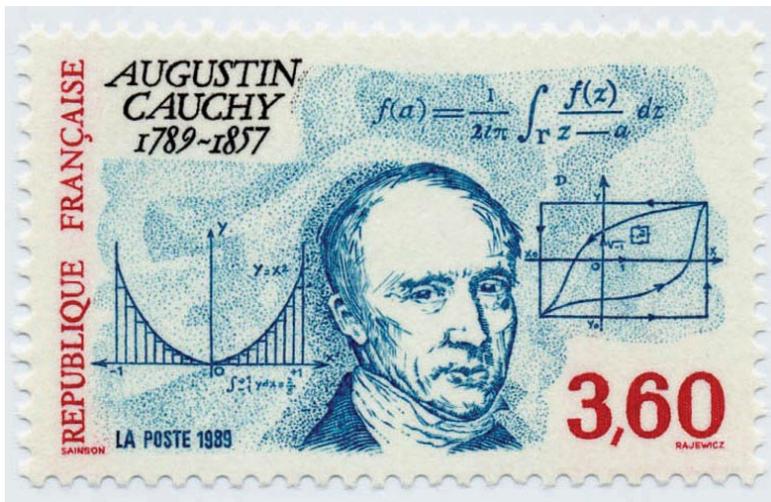
A Swiss banknote commemorates the swindler Leonhard Euler as Switzerland's finest mathematician, while plagiarist Augustin Cauchy is commemorated on a French stamp (at right). Both opposed Leibniz's discovery of the calculus.

ice's Jeremy Bentham.¹³ The Duke of Wellington was now the occupying power of France. In this setting, a wretched piece of British property, the Bourbon pretender, was installed as the puppet-king of France, and the followers of Euler's protégé Lagrange, Laplace and Augustin Cauchy, were entrusted by Wellington et al. with ruining, as much as possible, what had been the world's leading center of scientific genius, Gaspard Monge's, Lazare Carnot's, and Alexander von Humboldt's Ecole Polytechnique.

A great scientific genius, Carl F. Gauss, took the precaution of hiding some crucial features of his method of producing some of his most precious innovations in physical science, as if from behind a protective mask.¹⁴ There came a brief period in the 1850s, when the genius of such European allies of Gauss as Wilhelm Weber, Alexander von Humboldt's protégé Lejeune Dirichlet, and Bernhard Riemann, with their American friends of the Franklin tradition, carried a revolution in fundamental scientific progress. Then, in the wake of the plagiarist Cauchy, and of Clausius, Grassmann, et al., European and trans-Atlantic science was under increasing attack by what were actually anti-scientific forms of destructive forces, especially in the aftermath of the closely interrelated cases of the ouster of Bismarck, the assassination of France's President Sadi Carnot, and the assassination of U.S.

13. As I have emphasized in exposing the roots of the model of U.S. Vice-President Dick Cheney, the models which the Martinist master-mason de Maistre promoted as the role of "The Executioner" for the Jacobin Terror and for the design of Bonaparte's change in personality as Emperor, were derived from the satanic image of Spain's Tomás de Torquemada, as the latter would be later presented with notable accuracy by Fyodor Dostoevsky.

14. When I outlined the crucial parameters of what would be the basement team's Gauss project, I emphasized that Gauss had rarely presented the actual methods by which he had arrived at certain among his most important discoveries. I emphasized Gauss's correspondence with Farkas Bolyai on the subject of Gauss's own discovery of an anti-Euclidean geometry (actually anticipating Riemann's 1854 habilitation dissertation) as an illustration, but also pointed out exactly this kind of challenge in Gauss's discovery, that a series of asteroid orbits had Keplerian orbits of a type foreseen by Kepler himself. They had now virtually completed that specific feature of the assignment.



teenth-Century attacks on the work of Leibniz, and the same kind of evil represented by the Malthusian wrecking-effort and its present echo as the scientifically and morally fraudulent campaign conducted by the oligarchical accomplices of the corrupt former U.S. Vice-President Al Gore now.

The object continues to be, to condition society to be dumbed down in ways which blind human beings to that which distinguishes people from beasts: access to usable knowledge of the physical principles which reign in the universe. From Aeschylus' **Prometheus** to the present, the motive behind the attack on the modern science of Cusa, Kepler, Fermat, Leibniz, et al., has been the oligarchical principle, of inducing our fellow human beings to degrade themselves into the bestiality characteristic of the oligarchical traditions of the

Roman, Byzantine, medieval Venetian-Norman, and contemporary Anglo-Dutch Liberal form of neo-Venetian forms of financier-oligarchical traditions.

President William McKinley. This accounts for much of the evidence, that, today, there is a line of intellectual degeneracy in the practice of science and technology, leading from the followers of Ernst Mach and Bertrand Russell into the warrens of Silicon Valley.¹⁵

This pattern, so illustrated with a few relevant highlights, is to be traced, and that systemically, throughout European civilization, since the conflict between, on the one side, the Sparta of the law and tradition of Lycurgus, and, in the opposing camp, the contrary legacy of the Athens of Solon. The crucial, central cultural issue of the entire sweep of the history of European civilization since about 700 B.C. has been a result of the influence of the virtually pro-Satanic Delphi Apollo cult in the promotion of Sophistry and other measures, like those of former U.S. Vice-President Al Gore now, intended to destroy the specifically Promethean outlook of the greatest periods of European culture since ancient Classical Greece.

The motive behind that tragedy is that which Aeschylus presents to the audience of **Prometheus Bound**. In that case what I have identified, immediately above, as the physical infinitesimal which is expressed as a principle of physical science, is illustrated as the issue of man's knowledge of the mastery of the use of "fire." What Aeschylus presents to the audience by this device, is the oligarchical systems' keeping the majority of society's members as virtual human cattle: they are forbidden access to knowledge of the use of fire. In modern times, that same oligarchical form of intention, was the issue posed by those modern Anglo-Dutch Liberal forces behind the fraudulent Eigh-

15. Thus, from Japan's 1894/1895-1945 warfare which was launched against China, the British Empire has spent most of the interval 1894-2008 to date, in promoting warfare as a dominant feature of life on this planet as a whole. This is an echo of the social, economic, and warfare practices which medieval Venice orchestrated through its control over the Norman chivalry, as through the Crusades conducted from the Norman genocide against the Cathars and the crusade commonly referred to as the Norman Conquest. The British Empire of today is an empire of Anglo-Dutch Liberalism, an empire of those Venetian practices set into motion by Paolo Sarpi and his followers, which took over England during the developments from the accession of James I, but emerged as an imperial force under the British East India Company with 1763 Peace of Paris.

teenth-Century attacks on the work of Leibniz, and the same kind of evil represented by the Malthusian wrecking-effort and its present echo as the scientifically and morally fraudulent campaign conducted by the oligarchical accomplices of the corrupt former U.S. Vice-President Al Gore now.

2. Biosphere & Noösphere

For the purposes of the announced objectives of this report, the best examples to be used in presenting universal gravitation as a boundary condition of the kind described above, are the cases of the Twentieth-Century definitions of *Biosphere* and *Noösphere* by Russia's Academician V.I. Vernadsky.

As far as knowledge of this matter has been presented to me thus far, Vernadsky, circa 1935-1936, found himself in the position of authority from which he, in his official capacity, distinguished the composition of the chemical processes of the Mendeleev domain of chemistry as divisible into two types, between living and non-living types of products, with emphasis on the evidence that the composition of higher regions of the planet Earth must be divided between compounds which occur only in, or as products of living process, and those which occur as products of non-living matter.¹⁶ Today, this distinction applies not merely to relations among the elements of the original Mendeleev Periodic Table, but as a distinction among the isotopes of the elements, with increasing attention to the therapeutic or specifically biological significance of newly produced modern types of isotopes which are by-products of nuclear-fission or related actions.

Taking this distinction between the abiotic processes and the Biosphere into account, the composition of the upper regions of our planet's surface, has been shifting to the effect of increasing the ration of the total mass of living processes and their specific products, relative to products of non-living processes.

However, when the relative mass of the total product specific to the Biosphere is itself divided between products, and by-

16. Cf. Lyndon H. LaRouche, Jr., "Vernadsky & Dirichlet's Principle," **EIR**, June 3, 2005.



For the crime of giving man fire (technology), Prometheus is condemned by the Olympian Zeus to be bound to a rock, where a vulture perpetually eats away at his liver. This depiction of Prometheus' plight is from an ancient vase painting.

products, specific to human origins (the Noösphere) as distinct from non-human, we are confronted with the fact that the ratio of specifically human, to other by-products of living processes, is increasing in a way comparable to the growth of the Biosphere relative to the inorganic mass of our planet.

However, it is also the case, that the increase of the product associated with human activity, relative to the remainder of the Biosphere, does not necessarily tend to decrease the potential for the further absolute increase of human habitation, but, rather, also increases it as a relative gain of the ratios of the mass and intensity of activity of the Noösphere over the Biosphere.

Contrary to superstitious and reckless opinion today, to the extent that the net physical productivity of mankind increases sufficiently, the increase of population, is not a "threat" to the environment. However, whereas, an implicitly "neo-colonialist" shift of production from more developed sectors of "production," to less developed regions of "cheaper production," and less development of basic economic infrastructure, this combination produces a collapse of the planet's conditions of existence as a whole, as we are experiencing this effect under the foolishly imposed conditions of global collapse of the world economy, as by the so-called "environmentalists" and other members of the physical-work-hating ranks of our typical, anti-industry, anti-farmer science-illiterates of the "white-collar Baby Boomer" class of today.

This threefold division of the relevant total mass of our planet

(the abiotic, the Biosphere, and the Noösphere), confronts science with a challenge comparable to the relationship of the principle of universal gravitation to the orbital pathway of the planet. Life changes the universe, upward, and the human noëtic activity increases the potential growth and qualitative development of the Biosphere beyond the means of the Biosphere itself.

These considerations are an essential feature of any competent practice of economics today.

Life As a Physical Principle

The work of Vernadsky and its outcome have defined the principle of life in manner which is comparable to the distinction between the gravitational determination of a planetary orbit and the orbital pathway in the large. Life is not a product of "inorganic chemistry;" rather, organic chemistry, were to be strictly, broadly defined, as chiefly a product of

the principle of life, that in the same sense that the principle of gravitation is a universal physical principle.

Thus, in that way, life is a universal physical principle, as is gravitation as defined by the work of Kepler. Similarly, the principle of cognition, by which discoveries of universal physical principles are made only by human beings, is, like gravitation and life, also a universal physical principle, which changes the subsumed characteristics of the physical universe within which it operates.

I refer emphatically to a change in the composition of the chemistry of our planet which was induced by the action of the principle of life. The same kind of paradoxical challenge is presented as the change effected within the domain of living processes, which we observe as the growth of the Noösphere. Thus, gravitation, living processes, and cognitive processes, typify, in common, the fact of the relationship of superior external boundaries, *boundaries which are expressed experimentally in the ontological form of physically, rather than spatially infinitesimals*. It is upon those premises that the contained domain is thus defined.

A universe so composed of three or more such universal principles, can be only described as Riemannian. No geometry based upon *a-priori* assumptions of definitions, axioms, and postulates, or the like, is to be tolerated. Thus, as Riemann's 1854 habilitation dissertation variously states and implies, no universal principle can be defined either deductively, or inductively.

It is simply demonstrated, as Sky Shields has demonstrated in

his **EIR** contribution, that only processes of the mental quality of an analog function, not a digital one, can represent the relevant model of relationship pertaining to true universal principles as such. Contrary to the intentional fraud by Euler, the existence of the Leibniz infinitesimal, is not that of a small magnitude within the domain of the planet's orbit; it is a principle of change, operating from outside the motion of the planetary body as such, which is acting with "infinite density" on that trajectory, and is, therefore, ontologically, not metrically, infinitesimal in that sense.

Digital computer technology has uses, but not for defining the principles under whose law the universe operates. No mathematical procedure used to calculate a digital form of arithmetic procedure, or used similarly for any other mathematical function, has any subsuming relevance for a competent science respecting matters of physical principle. *As Sky Shields implied this with sufficient effectiveness, any civilization which operates under the guidance of a digitalized mentality, is, therefore, strategically inferior, in principle, to a competitor whose approach is coherent with analog functions.*

3. Genesis!

The subject of the relative quantity of the Noösphere has two principal aspects. In the large, we have the increasing ration of those components of the Biosphere which are specific to the Noösphere as such, with the resulting increase, a.) of the ratio of these components of the Noösphere to the Biosphere which includes them (quantitatively); b.) of the accumulation of generation of new qualities (e.g., "species") of elements of the Noösphere (qualitatively).

That duly noted, our attention must now focus on the quality of the mode through which those increments are generated. We proceed as follows.

The process needed to replicate Academician V.I. Vernadsky's discovery of the physical existence of the universal phase-space called the Noösphere, might be begun with a few, deceptively simple steps. First, in the approach outlined here, the student must enjoy the experience of discovering that there exists a problem which requires, what is for that student, a new way of thinking about the difference between beasts (such as, for example, either marsupials or mammals) and the human species.

The terrain which this chapter is now beginning to explore on this account, shows us that human creativity, while expressed for our knowledge through "mechanisms" of our biological existence, is not located within that physiology so defined. Rather, to provide a relevant pedagogical image of our subject at this point, the physical-biological apparatus of the individual mind is fairly described as "tuned into" an agency, the domain of human individual creativity, which is not entirely mortal in the sense that the living human body is. The individualization of that reciprocal interaction between the immortal, higher powers of the universe and ourselves, defines the experience which mankind may recognize as the individual human "soul," that creative aspect of the human mind which partakes of actual participation in the divine. This principle is



V.I. Vernadsky discovered the physical existence of the universal phase space called the Noösphere, LaRouche writes. And human creativity increases its potential.

physically efficient, as the application of fundamental scientific discoveries demonstrates; but, its power does not lie confined within our biological apparatus as such, but is a higher power tapped into by means of the specific appropriateness of the development of the human mind of an individual member of our species.

Such is man and woman of **Genesis** 1. Such is the immortal participation of the human individual soul, so defined, in the mission of the existence and work of humanity. So, humanity may be transformed for the better, and the universe itself improved, through the missions for good in which mankind participates.

The improvements in the powers of the mind of the living person, are dependent on the processes by which the human mind tunes itself to the higher powers of creativity into which it "taps," and through which the sections of populations accepting this pro-



EIRNS

"To master the challenge of the universe, we must accept it as being organized dynamically, as Cusa, Kepler, Leibniz, Riemann, and Vernadsky did, and as Albert Einstein understood to a large degree." Here two of the "basement" team, Peter Martison and Tarrajna Dorsey, working on the Gauss project.

cess, improve their powers in a way comparable in effect to growing into becoming the likeness of a higher form of living species.

These qualities, which distinguish the human potential from that of the apes, are expressed, most typically, in what is truly to be recognized as Classical, as music from J.S. Bach and such of his followers as Mozart, Beethoven, Schubert, and so on, and in the expression of scientific progress, as by ancient Thales, Pythagoreans, Plato, or the followers of Nicholas of Cusa today. It is a quality otherwise expressed in the form of the love for mankind which is echoed by the great principle, the benefit of the others, of the 1648 Peace of Westphalia.

There is, in short, a scheme in the universe considered in its totality, a principle to which the human mind may respond as if resonantly. This lies, not within our animal body, but within that to which the animal body of the human individual, among all living species, is exceptionally resonant, with which the resonant qualities of the human mind react reciprocally. What I just said, thus far, is not a guess, a mere speculation; it is my practical experience of knowledge of the matter.

Thus, when we consider the known experience of mankind's development, we are struck by a sense of awesome implications of what is written in **Genesis** 1. The steps by which we are able

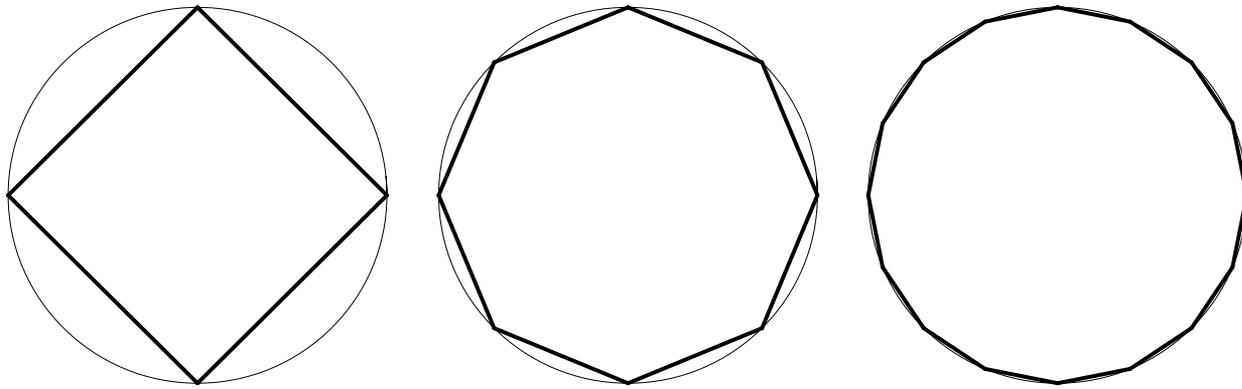
to express that qualitative distinction of the human individual from the beasts, thus become, for those among us who are writing, the well-springs of our passion for mankind and for what we are able to discover as truth.¹⁷

We who are witting, therefore have a very low opinion of opinions which are not truthful conceptions. We despise Sophistry and the reign of mere "popular opinion," on that account.

That much said, in preparation, on background, let us now argue that case.

On a first pass, the student should compare the *potential relative population-densities* among animal species. At first, this takes a form which appears to most to be pretty much straightforward for the cases of several chosen animal species in a relevant, typical environment. Try a well-trodden academic classroom and textbook favorite, the subject of the conjectured

17. In what is said here, we presume a qualitative distinction between discovery (as of a physical principle) and animalistic learning. For example, the following. Suppose we decide we can no longer tolerate tigers, elephants, and the like, but, rather "store" genetic material from which we must recreate such a lost species from our zoo. What we would lose would be the learning which the parent animals had formerly transmitted to the young. Some parents and educational systems make the awful mistake of assuming that human culture were merely a copy of transmitted learning among lower forms of life.



QUADRATURE OF THE CIRCLE

Archimedes tried to square the circle to approximate the value of pi, but his method was inherently flawed, as Nicholas of Cusa demonstrated. No matter how many sides an inscribed polygon has, each tiny side remains straight, while the circle remains curved. The circle is a different, higher species than the straight line.

interrelationship between populations of rabbits and foxes, for example. Then, the same study restated as adjusted to study the effect of changes in the environment, such as longer term changes in annual weather patterns, on the fox-rabbit model.

Such examples might be passable approximations, up to a point.

The second pass involves a qualitative leap, from Cartesian, or kindred models, into recognition that the problem is not one which can be properly understood by reliance on the usual statistical models. It is necessary to abandon the idea of what might be termed “conventional” statistical models (which really never work, anyway), and to bring in Riemannian modes in *dynamic* models, instead.¹⁸

At that point, a really serious leap must be brought in. Prepare the way for that leap in the following manner.

What Glaciers Teach Us

Adopt an “environmental model” known from studies of the span of approximately two millions years associated with recent, primary forms of ice-age cycles. Compare the known samples, and increases of potential relative population density shown for sundry branches of humanity over this period, as this is compared with the population-densities among higher apes.

What that approach accomplishes, is to enable us to smooth out relatively shorter-term variations in the comparison of apes to men and women. The choice of about two millions years has the particular merit of taking into account the several major gla-

ciations of that interval. Notably, the last such great glaciation of about two hundred thousand years, had the effect of forcing the development of human cultures associated with the northern hemisphere into the oceans, as migratory maritime cultures with an inherent reliance on astrognation which we find reflected in remnants of calendars which can be approximately dated from long-ranging astronomical models.¹⁹

Contrary to popular myths, the development of what became modern civilization were maritime cultures which moved upstream, up large rivers, to relatively remote inland locations, not according to the popularized myths of the riparian models. Not until the development of the continental railway system of the U.S.A., was the relative strategic hegemony of the maritime cultures effectively challenged by inland-based physical-economic and related development.

The British Empire’s persisting commitment to geopolitical warfare against the challenge of continental economies, has been the characteristic reflection, since 1763, of what had already been the dominant power of maritime cultures during known history since ancient times.

The development of physical science during known times, has always stemmed from the astrophysics associated with maritime navigational characteristics, as the Egyptian origin of the European science of Thales through the Sphaerics of the Pythagoreans and Plato attests.

What is outstanding as ancient knowledge of the crises of civilizations over the lapse of time since emergence from the recent general glaciation, has been the negative role played by oligarchical systems of the type treated by Aeschylus’ **Prometheus**

18. In the use of the term “dynamic,” we must convey the impact of the full development of the historical use of that term, from Thales and the Pythagoreans, including Archytas’ solution for the purely constructive duplication of the cube, through Plato, Leibniz, Riemann, and the application of a Riemannian standpoint by Vernadsky and Einstein. At no point are the methods of quadrature, such as those of Galileo, Descartes, Newton, Lagrange, Laplace, Cauchy, et al., permitted; rather, we regard them as, ontologically, systemically fraudulent when superimposed on subject-matters of physical science.

19. E.g., Bal Gangadhar Tilak, **The Orion: Antiquity of the Vedas and Arctic Home in the Vedas: Being Also a New Key to the Interpretation of Many Vedic Texts and Legends**. Tilak made use of chiefly Nineteenth-Century, largely German scientific resources for modern scientific treatment of ancient Asian sources.

Bound. The tragedy of Pericles' Athens is an example of the way in which the influence of the oligarchical trait of Sophistry led to the self-destruction of Greece's civilization in the Peloponnesian War and related developments, as in the fall of the Babylonian and the Achaemenid empires, and also the bow-tenure systems of lower Mesopotamia, earlier.

The subject of Aeschylus' **Prometheus** trilogy is of crucial clinical-historical significance on this account.

The issue of that trilogy is, in fact, that the banning of knowledge of the use of "fire," is, like Malthus' swindle and that of former U.S. Vice-President Gore today, an expression of the characteristic feature of the phenomenon of oligarchism whose destructive effects were experienced in the collapse of ancient and medieval empires, and which are the root-cause of the currently threatened general collapse of civilization being experienced as the onrushing disintegration of the presently hegemonic Anglo-Dutch Liberal financier system.

The suppression of knowledge of that form of the discovery and application of scientific progress in the practice of physical economy, progress through fundamental scientific and related progress toward increasingly power-intensive-driven capital-intensity, is the principal form of expression of evil which has been the leading cause of all great catastrophes of civilizations and cultures through the known past existence of mankind.

At the same time that we point out this fact, we must emphasize that cultural progress of the forms and types cohering with fundamental scientific progress and with Classical artistic progress of comparable qualities, is the only means by which the human population can avoid new dark ages of parts, or even all of mankind. Thus, oligarchism, and cultural expressions such as the existentialism of the doctrine published as **The Authoritarian Personality**, or the moral degenerates' scheme known as the Congress for Cultural Freedom, have been typical of the leading factors of pro-oligarchical cultural warfare which have caused the degeneration of contemporary civilization since the death of President Franklin Roosevelt.

Specifically, in the history of modern civilization, it has been chiefly the rise of what became the Anglo-Dutch Liberalism engendered by Paolo Sarpi and his followers which has been the leading edge of the imperialist factor of oligarchism in modern European history thus far. We have not yet quite degraded the general populations of Europe and North America into the status of serfs or slaves, but we are presently well along the way in that direction.

Thus, the time has come again to us today, that either we restore the kind of commitment to scientific and technological progress we of the U.S.A. and Europe once associated with the impetus of President Franklin Roosevelt's leadership, or civilization as a whole is already doomed to a prolonged new, world-wide dark age, during which the level of the human population might probably decline, rapidly, from about six and a half billions souls now, to significantly less than a billion, world-wide, in the course of two or so generations immediately ahead.

In effect, digital designs for computer killer games, and the general decadence of the shift into so-called "post-industrial," "globalized" society, have been markers of the process of programmed cultural decadence which has brought today's global society to the already visibly crumbling brink of global chaos. So, looking on the one side, at the emergence of mankind during some part of the recent two millions years of ice-age cycles, at a point that a new ice-age is now on the way some time ahead, and also taking into account the known cultural disasters which mankind has, largely, imposed upon itself since about 700 B.C., we must recognize that a policy of dedication to the progress of the Noösphere is the only means by which an immediate new general disaster of mankind could be averted now.

Riemann, Again

Within the context of the birth of a modern European civilization to which Cardinal Nicholas of Cusa contributed an essential part, the summation of scientific and related progress is provided by the work of Bernhard Riemann, as typified by the work of Russia's V.I. Vernadsky, and what I have indicated as the relevant comments on the matter of scientific principle by Albert Einstein. The point has been reached to summarize the case for, first, the nature of the power of the human mind to generate discoveries of universal physical principle which increase the power of mankind in the universe absolutely, and, second, the universe's susceptibility to be moved in that way.

Let us refer to that quality of mind required as the type of "the universal genius," such as Plato, Cusa, Kepler, Fermat, Leibniz, J.S. Bach, Ludwig Beethoven, and Bernhard Riemann. The universal mind seems as if to stand outside the known universe, but within the larger, real one. He, or she creates the idea of action by means of which a new state of active being may be introduced to the previously known universe. By such means, as nuclear and thermonuclear scientific practice have shown, mankind is enabled to produce states of being in the universe which had not been known to exist earlier. Through these actions, man's power within the universe is increased. It is a universe in which the fundamental law is a law of universal anti-entropy.

Despite all things tending to the contrary effect, the recent century's developments in physical science as such have demonstrated this to be true.

To accomplish such missions, the individual actor must rise above petty notions of "self-interest." To master the challenge of the universe we must accept it as being organized *dynamically*, as Cusa, Kepler, Leibniz, Riemann, and Vernadsky did, and as Albert Einstein understood to a large degree. What the known such minds of history have done in that respect, demonstrates what the nature of man actually is, and, more important, what it can, and must become.

Lyndon H. LaRouche, Jr., an economist and statesman, is a member of the scientific advisory board of 21st Century Science & Technology.