WHAT IS AN ECONOMIC 'SYSTEM'

Dynamics & Economy

by Lyndon H. LaRouche, Jr.

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This piece is, if only by implication, a prologue for the LaRouche Political Action Committee (LPAC) web conference to be broadcast from Berlin, Germany as part of related events held there during the interval of Sept. 6-8, 2006. The present written piece here, serves both as an expanded summary of a particular, crucially pivotal point featured within the three-hour address and diplomatic form of discussion there, but is intended for publication separately.

Foreword: On the Subject of Riemannian Physical Economy

By the mid-1930s, the founder of what is now that crucially significant branch of modern physical science known as Biogeochemistry, Russia's Academician V.I. Vernadsky, had already reported the following: that living processes are distinguished, experimentally, from ordinary notions of chemistry, by recognizing the fact that living processes are organized as a *dynamic* process, and that in special ways, ways which defy the modern reductionist's stubborn faith in a mechanistic, "mathematical-statistical" domain.[1] This use of the term *dynamic,* in the sense of Vernadsky's use of it for the chemistry of living processes, had been first introduced to modern science by Gottfried Leibniz's exposure of the intellectually fatal error of assumption which pervaded those Cartesian and related modes of modern empiricist reductionism. These errors permeate popular styles of academic teaching, the practice of most professional economists, and popular opinion, still today.

There could be no competent systematic comprehension of the nature of, or remedy for the presently onrushing great global economic crisis of mankind now in progress, without taking the implications of that usage of the term "dynamics" into account.

The deeper implications of this use of "dynamic" in the sense of that term as employed by both Vernadsky and Leibniz earlier, becomes clearer to the student and professional alike, when we take into account the deeper implications of the leading fact, that Leibniz's use of *dynamic* was explicitly traced by him from the use of the Greek term *dynamis* by those implicitly anti-Euclidean Pythagoreans and Plato, who represented the opposition to the relevant ancient reductionists and sophists of their time, and, also, implicitly, in opposition to the followers of the Sophist Euclid, later.[2]

In turn, the still crucial implications of this distinction of Leibniz's introduction of the term "dynamics," are brought forward to today's modern times, by reference to the revolution in physical science introduced by the Bernhard Riemann. On this account, Riemann is to be recognized as the principal successor of both Carl F. Gauss and Lejeune Dirichlet respectively. Consequently, it must be understood, in the circumstances of today's mounting global crisis, that the adoption of the standpoint of both Kepler and Riemann by Albert Einstein, and of Riemann's notion of dynamics, specifically, by Vernadsky, are crucial considerations in any competent attempt to solve today's ominous, current, global economic crises of humanity as a whole.

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

2. The Sophists of Plato's and later times were known for their rejection of experimentally demonstrated concepts of principle, in favor of such forms of popular opinion as Euclid's notion of supposedly "self-evident" definitions, axioms, and postulates.

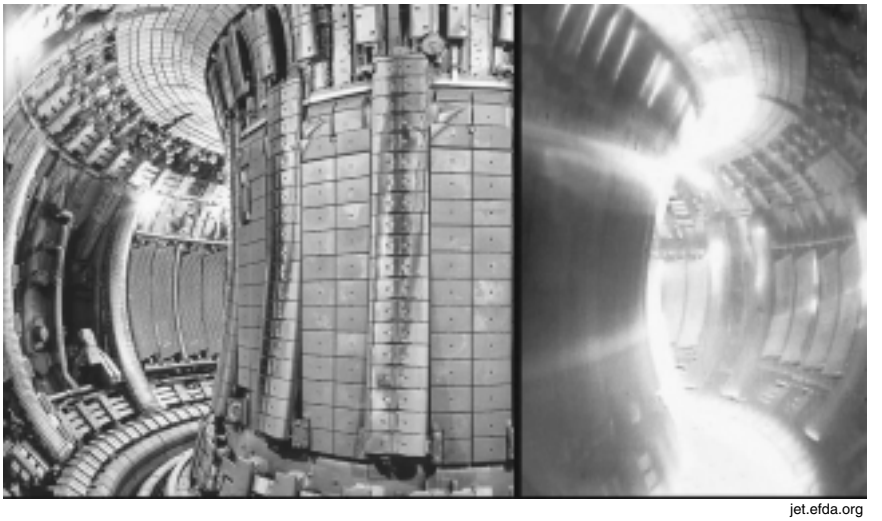
UN Photo

Collection of cow dung in Uttar Pradesh, India.

EIRNS/Stuart Lewis

Biofuels in the United States today: "an implicitly culturally suicidal expression of virtual idiocy."

"The progress of culture," LaRouche writes, "is to be measured in rates of increase of the anti-entropy of the system, a policy which includes the upshift to increasing 'energy-flux density' in modes of production and operation of basic economic infrastructure."



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A split image of the inside of the Joint European Torus (JET), a research program for fusion energy. The image on the right shows the plasma.

The problem for which I treat those scientific implications here, is, that, essentially, there have been two errors in method, which have been the principal factors in shaping the persisting, habituated incompetence of the forecasting and related work-product presented by most notable economists and governments of the U.S.A. and western and central Europe, up to present time. I refer to the errors in method, increasingly prevalent during the post-1945 interval, which led into the 1967-1972 breakdown-crisis of the Bretton Woods fixed-exchange-rate system, and which have led the world, since then, into the global economic breakdown-crisis in progress today.

Firstly, I emphasize the cumulatively ruinous effects of the methods employed for shaping long-range economic policies of the Americas and Europe, over the recent four decades, in particular. These currently prevalent methods are the blend of the scientifically incompetent, mechanistic method of René Descartes, with the similarly, intrinsically incompetent, Sophist methods of long-range economic forecasting premised upon the root-stock of both the East India Company's late Eighteenth and Nineteenth Centuries' Haileybury school dogmas and that school's Marxist echoes. *Secondly,* I emphasize that the ideology of management currently prevalent in the relevant leading circles of government, corporate management, and economists generally, has been, predominantly, incompetent in a relative degree beyond anything seen in those nations during early parts of our preceding century.

Thus, it must be conceded, that whereas the governments of the fascist and pro-fascist tyrants of the 1922-1945 period in Europe were evil, they had the practical advantage of gov-

erning societies within which there was a certain competence in the short-term technicalities of physical management, and were sometimes very efficient, and dangerous to civilization generally on that account. Whereas, the present crop of implicitly fascist and comparable leading financier circles, as merely typified by the case of the Synarchist network's Felix Rohatyn, have no technical competence in physical management of any actual form of real economy; consequently, the reign of the latter types would, by itself, ensure an early general, physical collapse of global civilization, if the present crop of radical monetarists were to gain even as much as merely temporary command over world economy.

The Root of Today's Economic Science

The necessarily included key for understanding the crucially important role of the work of Gottfried Leibniz in Nineteenth-Century and later physical science, and the impact of that scientific practice on the successes of modern physical economy, is the role of Abraham Kästner (1719-1800). Kästner was the avowed and competent defender of the original standpoint of both Leibniz and Johann Sebastian Bach, and a leading Eighteenth-Century professor of mathematics, whose prominent students included Carl F. Gauss.[3] The following summary of the most relevant historical background, is required.

The leading Fifteenth-Century Renaissance figure of Cardinal Nicholas of Cusa, in, most notably Cusa's ***De Docta Ignorantia*** and his subsequent writings, had revived the essential, Classical Greek cultural principles of what became modern European civilization, and had done so on the basis of that pre-Euclidean standpoint in geometry which is represented for us today by Thales, the Pythagoreans, Socrates, and Plato. The first realization of the general implications of Cusa's work, by the explicit followers of both Cusa and Cusa's followers' Luca Pacioli and Leonardo da Vinci, is located in the original discoveries by Cusa follower Johannes Kepler. The latter's revolutionary discoveries in physical science, provided the basis on which all leading accomplishments in European physical science have been centered since.[4]

The division between Kepler and his principal modern adversaries, a division between competent and reductionist opinion on topics of physical science, had persisted as a more or less open debate until about the time of the death of Leibniz, as a related form of reductionist view was continued from the scandalous late-Fifteenth-Century work of John Wenck, and by the explicit attack on Cusa's work by the Venetian spy-master, and marriage-counselor to England's Henry VIII, Francesco Zorzi. With the accession to power in London, of a political enemy of Leibniz, the former William of Orange ally, England's George I, the conflict between Leibniz and his reductionist adversaries was transformed from the quality of a debate to an inquisition. Leibniz's reputation and influence were subjected to an inquisitional quality of lying vilification and related persecution, which continued during the approximate half-century following Leibniz's death.

This inquisitional campaign was coordinated, from Paris, by the Venetian Abbé Antonio Conti and the Voltairean network of salons which had been set up and guided by Conti until his death in 1749. This was the network of salons which crafted that empiricist hoax, by such as D'Alembert, de Moivre, Euler, Lagrange, and their cronies, which has been exposed as a hoax in Carl F. Gauss's 1799 doctoral dissertation.

The resulting relative, early-Eighteenth-Century "dark age" in science, continued until the sparking of the German Classic by the works of Gotthold Lessing and Moses Mendelssohn, whose work thus prompted the spread of that Classical outlook internationally, a Classical insurgency which continued from the February 1763 Treaty of Paris to about the time of both the U.S. Constitutional Convention and the launching of the French Revolution in July 1789 by the British agent Philippe Egalité. This late-Eighteenth-Century Classical movement prompted a revival of a prominent faction which represented the pre-1714 scientific spirit associated with the work of Leibniz during his lifetime.

Among his founding of entire branches of modern science, the great polymath Leibniz had given birth to a modern science of physical economy, that in the course of his work over the course of the 1671-1714 interval. It was this science of physical economy, established by Leibniz, which had informed the crafting of that American System of political-economy which is, today, the only significant, systematic alternative, world-wide, to the Anglo-Dutch Liberal schemes hegemonic in western and central Europe, and beyond. It was

3. Kästner and A.W. von Zimmermann were the principal significant teachers of Gauss. It was the work of Kästner in defining an anti-Euclidean geometry, which provided the foundation for those conceptions of that anti-Euclidean (rather than "non-Euclidean") physical geometry, which led Riemann, as Riemann himself stressed explicitly, through crucial features of the relevant work of Gauss, to Riemann's 1854 habilitation dissertation, which laid the basis for all competent notions of modern physical geometry. The misrepresentation of these connections which is encountered in numerous Twentieth-Century academic sources, is a reflection of the slavish submission to an ideologically motivated false representation of the issues implicit in Gauss's exposure of the characteristic frauds, on the subject of the Leibniz calculus, by the fanatical reductionists D'Alembert, de Moivre, Euler, Lagrange—and also, implicitly, Laplace, Cauchy, et al., as this challenge was first delivered publicly in Gauss's 1799 doctoral dissertation.

4. With the exception of the late Seventeenth-Century English translation of Kepler's announcement of the discovery of gravitation, on which the pro-Galileo, English plagiarists of Kepler relied in crafting the silly Newtonian dogma, and despite the availability of Max Caspar's work in German, English-language editions did not exist until after the 1970s! The most crucial work of Kepler, while it had been available in Latin, was general within actual practice among even leading scientific circles, excepting figures such as A. Einstein, until a time during the late 1980s, after the admittedly limited success of my associates and me from the Fusion Energy Foundation who had exposed both the relevant scandal and its pernicious practical consequences for the current practice of U.S. and other scientists.

the trans-Atlantic conflict between the patriots, associated with the cause of the American Revolution of 1776-1789, on the one side, and, within North America itself, the British assets, the American Tories, which typifies, still today, the most relevant conflict between the American System of political-economy, and the implicitly imperialist Anglo-Dutch Liberal system.

The center of this development of what became the American System of (physical) political-economy, is rooted in related developments in the closely related fields of modern statecraft and physical science generally, developments which date, predominantly, from early during the Fifteenth-Century Renaissance, onward.

Despite the relative "dark age" of Europe's science and art, approximately 1714-1763,[5] it had been the situation, that, during the prior span, France had been the center of all leading European science. This waxing and waning development in science, which always pivoted on the issues of the influence of Kepler's work, had been combined with the work of such followers of Kepler as Pierre Fermat, Blaise Pascal, Christiaan Huyghens, Leibniz, and Leibniz's collaborator Jean Bernouilli. This influence led Europe's progressive scientific development during a time from the 1648 Treaty of Westphalia, through the onset of the French Jacobin Terror and Napoleon's reign.

This leading role of France in science was continued into the beginning of the Nineteenth Century through the influence of the faction of circles of Gaspard Monge and Lazare Carnot. During this time, France, however scarred it had been by factors associated with Louis XIV's alliance with the relics of the Fronde, was the center of scientific and related progress throughout European civilization.[6]

However, then came the inquisitional quality of attempted, post-1789 destruction of French science's leading institutions. From 1815 onward, the educational program devised by Gaspard Monge for the École Polytechnique, was the leading direct target of a campaign of destruction of scientific competence, a campaign launched under the direction of the Duke of Wellington's Bourbon restoration puppet-king. This renewed campaign against the legacies of Kepler and Leibniz, began a process of the corrosion of the foundations of that École Polytechnique which had led France's scientific achievements through 1815. The rising trend of relative decadence in France, was led by Laplace and Cauchy, but was resisted in the counter-action led by the long-standing member of the Monge-Carnot École Polytechnique, and associate of Lazare Carnot, Alexander von Humboldt.[7] From about 1827-28 on, Humboldt contributed a leading role in transferring the principal residence of the leadership of the world's science, from science's decline in France, into a place of refuge in Germany.[8] This coincided with a shift from von Humboldt's regular work with the École in Paris, earlier, to his increasing reliance on German-language journals, and his own concentration, with his protégé Lejeune Dirichlet, on Berlin and the complex of German higher educational institutions associated with the work being done otherwise at Göttingen University under the successive leaderships of Gauss, Dirichlet, and Riemann.

This shift of the world center of science from Paris, to Germany's Göttingen and Berlin, resulted, during the 1850s, in the emergence of Dirichlet and Riemann as the central figures, as successors of Gauss, in the leading work in physical science world-wide. The crucial feature of this progressive development, came to the surface with the publication of Riemann's 1854 habilitation dissertation, and the way in which the implications of that dissertation led, through Riemann's treatment of Abelian functions, into the elaboration of the conceptions of hypergeometry which had been introduced by Gauss, as if in passing, earlier.[9]

Therefore, if we take into account the elements of the work of Gauss and others among Riemann's relevant predecessors, the greatest step of revolutionary progress in modern Euro-

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5. Cf. H. Graham Lowry, ***How the Nation Was Won*** (Washington, D.C.: Executive Intelligence Review, 1987).

6. Our Benjamin Franklin was a most notable collaborating scientist among those international circles of his life-time.

7. Cf. Charles Babbage, John Herschel, and George Peacock, ***The Principles of Pure Deism in Opposition to the Dotage of the University*** (Cambridge: 1812). See also Babbage's ***Reflections on the Decline of Science in England*** (1830).

8. As signalled by the role supplied by the launching of Crelle's ***Journal für reine und angewandte Mathematik.***

9. *Bemerkungen zu den Fragmenten über die elliptischen Modulfunctionen,* ***Gauss Werke*** VIII, pp. 102-105 (Fricke). Cf. ***Werke*** III, *Über das arithmetisch-geometrische Mittel,* pp. 361-403. I emphasize the opening of Riemann's 1854 habilitation dissertation, noting the following portion of the opening two paragraphs, where Riemann indicts the sophistry of the tradition of Euclid and the modern reductionists alike: "Bekanntlich setzt die Geometrie sowohl den Begriff des Raumes, als die ersten Grundbegriffe für die Constructionen im Raume als etwas Gegebenes voraus. Sie giebt von ihnen nur Nominaldefinitionen, während die wesentlichen Bestimmungen in Form von Axiomen auftreten. Das Verhältniss dieser Voraussetzungen bleibt dabei in Dunklen; man sieht weder ein, ob und in wie weit ihre Verbindung nothwendig, noch a priori, ob sie möglich ist.

"Diese Dunkelheit wurde auch von *Euklid* bis auf *Legendre,* um den berühmtesten neueren Bearbeiter der Geometrie zu nennen, weder von den Mathematikern, noch von den Philosophen, welche sich damit beschäftigten, gehoben. . . ."

In English translation (Riemann, "On the Hypotheses Which Lie at the Foundations of Geometry," Henry S. White, trans., in ***A Source Book in Mathematics,*** David Eugene Smith, ed. [New York: Dover Publications, Inc., 1959]):

"It is well known that geometry presupposes not only the concept of space but also the first fundamental notions for constructions in space as given in advance. It gives only nominal definitions for them, while the essential means of determining them appear in the form of axioms. The relation of these presuppositions is left in the dark; one sees neither where and in how far their connection is necessary, nor a priori whether it is possible.

"From Euclid to Legendre, to name the most renowned of modern writers on geometry, this darkness has been lifted niehter by the mathematicians nor by the philosophers who have labored upon it. . . ."

Bernhard Riemann focused the attention of modern science on experimentally premised principles, rather than aprioristic assumptions.

pean science since Johannes Kepler, was embodied in the central feature and consequent implications of Riemann's revolutionary 1854 habilitation dissertation. It is this view presented by Riemann which is echoed, in effect, in Vernadsky's view of the principled, dynamical character which distinguishes living processes from pre-biotic chemistry as defined today. It is the view of both Kepler and Riemann by Albert Einstein, which defines the needed essential view of science and economy today.

Riemannian Economics

By ridding scientific method of Euclidean and related Sophistical forms of *a priori* presumptions, Riemann focused the attention of modern science where it must be placed: on the nature of those experimentally premised principles which must stand in the place where both the Sophists and modern reductionists insert aprioristic assumptions. Riemann's discoveries show, that all definitions, axioms, postulates, and similarly wishful forms of arbitrary ontological presumptions, must be eradicated from both physical science and mathematics, in particeular, and also from the sundry forms of expression associated with both logic and related, deductive/inductive modes of argument in general. These wishful forms of premises to be banned, are all to be classed under the category of Sophistry.

Pierre de Fermat

This presented science with two leading, specific challenges.

First, in historical order: Fermat's experimental demonstration of a principle of "quickest time," must be viewed in the context of Kepler's proof, for the case of gravitation, of the infinitesimal principle of action, the principle of the Leibniz discovery of the calculus, which had been expressed by Kepler's measurement of "equal areas in equal times." Thus, the *a priori* notion of the independent existence of space, time, and matter, was crucially discredited in experimental fact by the discovery by Fermat: the concept of a functional continuity of physical space-time must be adopted, instead.

Second, once we accept this role for the notion of an efficient continuity of physical space-time, instead of Seventeenth- and Eighteenth-Century reductionist notions, the relevant question becomes, and remains: What replaces the role of *a priori* assumptions in a functional mathematics of physical science? Once Leibniz had settled the principle of the actually infinitesimal calculus, which was settled, in fact, with the Leibniz-Bernouilli conception of a catenary-cued principle of physical least action, the issue of the "shaping" of physical space-time, the issue of Euclidean versus non-Euclidean geometry, came into focus as the relevant form of challenge.[10] Typical of this shift, was Kästner's treatment of this issue, which provided the basis for Gauss's insight into that notion of an anti-Euclidean geometry which Gauss subsequently refused to discuss openly throughout his lifetime; nonetheless, Gauss's actual work on subjects of physical geometry to this effect, was crucial in the subsequent development of a modern anti-Euclidean physical geometry by Riemann.

This challenge, as anti-Euclidean geometry had been presented by Kästner, forced attention to the crucial implication of Kepler's view of the elliptical orbit. This question had been posed by Kepler's evidence: that it was the principle of gravitation which determined the elliptical orbit. This is contrary to the silly view, the view in which the elliptical orbit itself might be assumed to be ontologically primary. Here lay the significance of the work on physical geometry by Gauss and his relevant contemporaries, including the matter of Abelian functions. For Riemann, this line of inquiry had led Gauss into the issue of higher orders of physical geometry, the issue of hypergeometry. It was this set of considerations which brought Riemann to a categorical kind of general solution for the problem of physical geometry as a whole: in which the functional expression of the physical relations among a set of experimentally defined universal physical principles (i.e., the Riemannian tensor), defines the physical geometry of the

10. The experimental development of Fermat's discovery of a universal principle of "quickest time," led, first, into Christiaan Huyghens' experiments, in which it was assumed that a principle of least action could be expressed by the functions of the cycloid. The evidence that the basis for both the Leibniz-Bernouilli discovery and elaboration of the physical principle of physical least-action, and natural logarithms, lies in the catenary function, forced open the *ontological* function of what the Eighteenth-Century reductionists' misnamed "imaginary numbers." On this account, Gauss's doctoral dissertation set the pace for the consequent revolution in the mathematics of physical science.

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Carl F. Gauss's work on physical geometry laid the basis for Riemann's development of a modern anti-Euclidean geometry.

measurable action.

Thus, we have the crucial ontological issue posed by the proof, that of the existence of the efficient role of the expression of a universal physical principle as *a (Leibnizian) absolute infinitesimal,* rather than as a discrete object of sense-perception, or as a convenient use of the mathematically imaginary.[11]

This solution, as brought to a certain point by Riemann, defines a working modern conception of the significance of the term "dynamics," as that term is employed by Vernadsky later. This same conception of *dynamics,* as by Vernadsky, is, presently, the appropriate foundation for defining the notion of physical economy in terms of physical-experimental, rather than the inherently aprioristic statistical-mechanistic monetary standards.

Essentially, therefore, the need for the notion of the dynamical form of physical space-time, the notion within which mankind acts to produce those physical effects, per capita and per square kilometer, associated with a notion of a physical, rather than a monetarist's economy, can only be accomplished from the point of view of a universe as dynamical in the sense which Vernadsky applies to the experimental subject-matter of the Biosphere. Competent economic theory can only exist in a Riemannian quality of an intrinsically non-linear context.

The fact to be emphasized, is that the recent changes in global policy, over the 1968-2006 interval to date, have put the world as a whole presently in such a specific type of perilous plight, that it is only from that vantage-point, that the challenge of defeating the presently onrushing general breakdown crisis of world-economy could be overcome.

The Idea of Dynamics

As already noted here, the term "dynamics" was introduced to modern physical science by Gottfried Leibniz, that in the course of his exposing the fraudulent character of the mechanistic, reductionist assumptions, those the premises on which René Descartes had attempted to construct a mathematical physics. This fact, the inherent incompetence of the methods of statistical mechanics, as for physical science generally, and statistical economics, has crucial implications for any effort to understand the conceptual roots of that general notion of dynamics which is indispensable for competent work in economics today.

As I have pointed out, repeatedly, in relevant locations published earlier, Leibniz's adoption of the term "dynamics," was a product of his extensive studies of the works and method of Plato. That method, which scholars associate implicitly with the related work of Thales and with the Pythagoreans, as also Socrates and Plato, is signified by the concept of *dynamis* which played a prominent part in the writings of Plato, including, notably, authentic modern replicas of such among Plato's writings as the ***Theaetetus*** dialogue.

The scientific method represented there bore the name of *Sphaerics.* That term was attributed by the relevant ancient Greeks to Egyptian origins, and has the practical implication of representing *astrophysics, rather than contemplative forms of astronomy.* With the Pythagoreans and Plato, *Sphaerics* brings astrophysics down to Earth as a system of what should be viewed in retrospect, today, as universal, anti-Euclidean scientific thought.

As Aeschylus' Prometheus Trilogy provides us the boldest clear view of the relevant issues, this down-to-Earth side of the view of *Sphaerics* by the Pythagoreans and Plato, had profound practical implications bearing upon the most crucial of the cultural conflicts within ancient Greek society of the Classical period. The notion of the physical universe, and of man's nature, typified by the writings of the Pythagoreans and Plato, is in violent, fundamental contrast to the standpoint expressed, as by the character of the Olympian Zeus within Aeschylus' ***Prometheus Bound:*** an oligarchical standpoint typified by Zeus' condemnation of Prometheus, for sharing knowledge of the application of a universal physical principle with human subjects.

The Pythagoreans and Plato defy that ***Satanic quality of the tyranny of the oligarchical model's Olympian Zeus****, by affording man the right to express the power, and the duty, as* ***Genesis 1:26-31*** *does, to change the universe in which we act,* ***for the better****, as through the application of discovered universal physical principles.*

Notably, the Pythagoreans allowed no simply aprioristic presumptions respecting the relations among points, lines,

11. A parallel challenge is posed by the experimental actuality of the existence of the Pythagorean musical comma, and the latter's implied relationship to Gauss's notion of the challenge of the arithmetic-geometric mean.

surfaces, and solids; the transformation from one to the next was allowed only through physical actions expressing universal principles, as identified by the categorical term which was employed by Plato in relevant locations: *dynamis.* The most notable examples of this for physical geometry as such, are the doubling of the square and cube by construction, and the construction of the regular (Platonic) solids. The case of the doubling of the cube carries matters over into the special significance of the treatment of cubic and biquadratic residues by Gauss, as, for example, in his exposure of the hoaxes of the empiricists D'Alembert, de Moivre, Euler, Lagrange, et al., on that issue of the infinitesimal calculus which is posed, in formal terms, by the existence of these residues.

That serves to illustrate the crucial point, that the category of abstract geometries consonant with Euclid's ***Thirteen Books*** never existed in actuality; only physical geometry exists in a functional sense. Only physical geometry has existed as a competent notion of a principle of mathematics suited to the needs of physical science; this was known even as early as, or earlier than the Pythagoreans. This was already implicit in *Sphaerics* as a topic of astrophysics, rather than a mere astronomy.

These considerations eliminate the conception of a political-economic process defined primarily in terms of a notion of relative monetary value. That fact leads to recognizing the virtual sheer lunacy shown by the "free trade" fanatics, in the repealing of the system of regulation associated with the continuation of the reforms introduced under President Franklin Roosevelt's administration. Only regulation of the type associated with the Franklin Roosevelt tradition is tolerable. As is indicated in the following chapters of this report, it is physical, not monetary values, which must be employed.

The Nature of the Problem

The modern ignorant man embraces the delusion that the mental objects prompted by sensations, represent the *content* of the phenomena prompted by the world outside his skin. In fact, we know that, with one categorical exception to this, the sense-perceptions prompted by actual experience, are shadows which the real universe casts upon our mental-perceptual apparatus. That is to say, that when these impressions are not illusions, they are the shadows which the events of the real universe have cast upon that apparatus; *but, those shadowy sense-perceptions do not contain any explicit representation of certain otherwise knowable categories of mankind's actual experience in and of that universe.*

Those existing principles which are not registered as sense-perceptual objects in themselves, are typified by the discovery of universal physical principles such as Kepler's uniquely original discovery of universal gravitation. This category also includes what are rightly regarded as principles of Classical artistic composition, such as the relevant examples from the work of Leonardo da Vinci and the well-tempering principle of counterpoint of J.S. Bach.

The significance of universal physical principles, and comparable Classical artistic principles, is that their efficient action is on the universe as a whole.

The functional significance of knowledge of these principles, is that they can be known only by human beings, and not lower forms of life. It is the capacity for efficient knowledge of such universal principles, which supplies the proper definition of human nature. The lack of the capacity to know such principles, constitutes a condition of dehumanized humanity.

This ignorance corresponding to the condition of dehumanized humanity, is not a product of human nature, but directly the contrary. It expresses evidence variously adducible or known from history and pre-history, of the way in which some people, in some societies, have learned to tame people in a way similar to the fashion they tamed and managed cattle. In brief, the captors learned that the best way to keep people in chains, is to induce those victims not only to put those chains upon themselves, but to defend the system of chaining, even savagely, as "our culture."

We see this in the work of the Nineteenth-Century Spanish monarchy's conduct of the African slave-trade, under British imperial protection of a practice which the British of the 1790s had had found too dirty and unprofitable to conduct themselves, and had turned to China and related international drug-trade, instead. The British East India Company and its heirs did not invent such practices, nor did the Spanish Habsburgs who led in creating the trans-Atlantic African slave-trade in the first place.

Kill the strong young adult captives who would fight back, scrap the old as unsuitable for service, or simply dump the young male slaves into strange places where they had no cognizable opportunity to flee. Above all, as this prevailed under the London-backed southern slave-holders rule of the 1820s and beyond, pronounce a death-sentence on any slave who learned to read and write, and also upon the non-slave who taught the slave such forbidden knowledge.

For freed slaves and their descendants in the U.S.A. today, there are other methods for accomplishing a similar effect upon the minds and wills of the intended victims. These methods are often catalogued as "their right to their own culture." Most citizens of the U.S., not only ex-slaves, are subjected to a kindred method of mass social control today.

The modern practice of mind-slavery is oligarchical methods of control over what is popularly accepted as the "people's own" induced "popular culture." Thus, the struggle for the cause of human freedom often centers, ironically, in freeing the masses of victims from the invisible slave's chains of a current mass-culture. Today, those chains are usually referred to as "popular culture."

Despite those and related means for inducing masses of

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A slave ship en route to America. Today, such methods have been replaced by "mind-slavery," by which oligarchical control is exerted through what is widely accepted as "popular culture."

the ruled to submit to such methods of mass brainwashing, the progress of mankind, the increase of man's physical power in nature, per capita and per square kilometer, reflects the fact that there is at least one class of valid mental objects which has no explicit form of sensory representation; I point to the specific such case, called *universal physical principles.* I point to the example of a particular principle of this specific type, called gravitation, as Kepler defined gravitation experimentally.

These objects, such as Kepler's principle of gravitation, or representations of the Pythagorean category of *dynamis,* are not directly visible to the human senses, but only to a faculty which does not exist in lower forms of life than human individuals, a faculty conveniently identified as *creative insight,* a human faculty which was outlawed by Aeschylus' character, the Olympian Zeus of ***Prometheus Bound.***

That policy expressed by the Olympian Zeus is the cornerstone of what has been known to European culture since Classical Greece as *the oligarchical principle,* a doctrine of practice which variously hunts down, or herds entire categories of the human population as if those people were lower forms of life, were wild or tamed cattle.

Nonetheless, despite all that, the idea of freedom is accessible. As in every great upsurge in the struggle for freedom on behalf of masses of a population, it is freeing a people from those chains of ideology often adored as mass culture, which is the means of liberation, as the marvelous outcome of the Seventeenth and Eighteenth Centuries' struggles for development in the English colonies of North America attests.

The Battle for Freedom

To understand the global strategic crisis of culture today, consider the examples from the cycles of rise and decline of cultures in the history of European civilization since ancient Greece.

During what is regarded as the Classical period of ancient Greek cultures, as the time of Thales, Heracleitus, Solon of Athens, the Pythagoreans, Socrates, Plato, and Alexander the Great, and through the time of the Platonic Academy through the work of the Platonic Academy's Cyrenaican Eratosthenes who was the leading scientific figure of a period leading into his own (circa 204 B.C.) and his correspondent Archimedes' deaths (212 B.C.), the proposal for establishing respectively western and eastern divisions of a common "world empire" centered upon the Mediterranean, was known as the "oligarchical model."

The subject of this oligarchical model was addressed by the poet, dramatist, and historian Friedrich Schiller in his Jena lectures, in which Schiller traced the continuing division of European civilization along the lines of opposition of the oligarchical model of Lycurgus' Sparta and republican model of Solon of Athens.

The same conception was expressed in the division of the Roman Empire by the Emperor Diocletian, on a different line of division. The former protégé of Diocletian, the Emperor Constantine, divided Christianity as a legalized state religion of his Pantheon, along similar lines of East and West. The long process of collapse of the imperial power of Byzantium, beginning approximately 1000 A.D., resulted in the emergence of a new "world empire" based on the partnership of the Venetian financier oligarchy with the Crusaders of the Norman chivalry. It was only with the collapse of Norman Europe in the Fourteenth-Century New Dark Age, that the persisting efforts of Charlemagne and his followers succeeded in establishing the institution of modern European society as a leading challenger to the millennial hegemony of the so-called Persian or, simply, oligarchical model as the dominant power, and social system of the Mediterranean and adjoining regions.

The British East India Company's form of empire, expressed today as London-centered, and Synarchist-allied Anglo-Dutch Liberalism's tyranny within the present world monetary-financial system, is currently engaged in the effort to eradicate the institution of the sovereign-nation-state from the planet, with the intent to establish a form of global imperialism called "globalization."

Although the great ecumenical Council of Florence, and the related work of Cardinal Nicholas of Cusa, established the modern sovereign form of nation-state of such exemplars as Louis XI's France and Henry VII's England, the Venetian orchestration of the Fall of Constantinople and the Venetian faction's role in launching the Spanish Inquisition, the 1492-1648 torment of Europe's religious wars, and the Habsburg rampages of the Sixteenth and Seventeenth Centuries, have left globally extended European civilization today with a persisting division between the forces of freedom, as exemplified by the founding of the U.S. constitutional republic, and the domination of European civilization and areas beyond by the Anglo-Dutch Liberal model of a modern version of the ancient financier-oligarchical model, during most periods of modern history to date.

Empiricism as Mind-Slavery

The new feature of the modern oligarchical model, the role of empiricism and its influence over nations and their cultures, has been a shift in the method by which the reigning financier and related oligarchies seek to reduce populations engaged in some forms of technological progress to a virtual mind-slavery similar in effect to the image of the suppression of scientific knowledge by Aeschylus' Olympian Zeus.

As a consequence of the ignorant and commonplace, reductionist opinion expressed by Liberal reductionism, respecting the nature of sense-experience, the childishly mistaken opinion, and virtual functional brain-damage, respecting physical reality, is the belief, explicitly or simply in effect, that, unless there is an external intervention, the universe functions as simply repeating itself as it had been before, and, therefore, does not change until some external action upon it induces a change of state. That popular and ignorant, mechanistic view, usually represents the universe of physical, and also other experienced events, as composed of kinematic interactions within a falsely imagined physical space-time in which processes are mechanical in the Cartesian sense, rather than dynamic.

The contrary, competent view, that of *Sphaerics,* and, notably here, modern science since the work of Kepler, is that the universal principles of which the universe is composed, are not presented as simple forms of "fixed principles," but are, rather, as Heracleitus had famously insisted, principles constantly acting to the characteristic type of ongoing effect of changing the state of the universe from the state which it had exhibited a moment earlier. It may be said, as a corollary, that what appears, experimentally, to be no-action will, probably, be the action of entropy in the sense of "winding down," or of a form of moral and intellectual decadence such as a policy of "zero growth."

In other words, any adopted notion of a simple form of fixed principle which is presumed to account for the action presented by a preceding cyclical action, is flawed by lack of reference to the additional "element" of complexity actually within that assumed principle which expresses *a principle of change.*

This factor of inherent complexity of any valid single universal physical principle, represents the essential, principled distinction between a mechanistic and a dynamic system. This is the crucial issue posed by a specifically Riemannian view of the physical implications of tensors. Here, in this issue, lies the understanding of the "factor" of anti-entropic directedness in physical systems generally, and in the human mission specifically. The tensor, conceived as Riemann's work implies, is the typical expression of a dynamic, as opposed to a mechanical (e.g., neo-Cartesian) order in the universe. To define this properly, the fact that the universe as a whole is anti-entropic in principle, must be reflected in relevant studies and designs for practice. I turn your attention to that now.

Therefore, for us, an apparent principle seemingly sufficient to account for a cycle which has occurred, involves an assumption which must be corrected. It must be corrected to show, appropriately, that any previously apparently "fixed" principle, is actually associated, functionally, with an additional aspect, an inherent universal principle of change: as Heracleitus emphasized, and as is implicit in Plato's ***Parmenides*** dialogue.

Thus, in any truly dynamic system, such as a Riemannian system which employs discovered universal physical principles, in place of arbitrary ones akin to a Euclidean or most non-Euclidean systems, the system as a whole has, in fact, a directed overall intention. This intention is expressed as further qualitative development of the system as a whole. Therefore, a competent representation of that real-life system must qualify each "dimension" of the array as undergoing some rate of change, called progress, which is coherent with the ontologically qualitative developmental characteristic of the array as a whole.

That is what is usually left out of account by those who fail to grasp the implication of what Leibniz and Vernadsky have identified as dynamic systems.

In other words, in a national economy as a whole, for example, the indicated rate of profit, as in monetary terms, or other fixed parameters, is inherently false. Those false methods which treat the national economy as the sum of components considered individually, have failed miserably, already in the post-1964-1968 U.S.A., especially during the recent thirty-five years. The rate of downshift, in county after county, of the ratio of physical output to unskilled service employment, is in fact an accelerating physical collapse of the nation's economy over the entire span of the 1977-2006 interval to date. In this, most of the changes identified as "cost savings," or "price reductions," have represented actions which have now accumulated to the point of being a virtually irreversible physical collapse of the total

national economy in the form it is organized today.

Any assumed principle which overlooks the existence of that added factor of change, must be treated, at best, as a conditional view of a phase-space, not the actual universe in general.

Take the following considerations into account as points of illustration.

An Illustration of the Point

To illustrate the richly ironical point in fact which I have just stated here, look at the Earth as defined by Vernadsky's elaboration of his discoveries pertaining to the Biosphere and Noösphere.

Whereas, the Earth is receiving a stream of added mass from Solar radiation, if we treat the increasing mass of the Earth as a constant of reference, the pre-biotic state of the planet is being shrunk, *relatively,* by the increase of the accumulation of the Biosphere, and the combined state of the abiotic domain and Biosphere, is being shrunk, *relatively,* by the increase of the accumulation of the Noösphere. The universe, as so represented, in this case by Earth, is proceeding "spontaneously," in an expression of redoubtable lawfulness, to a higher physical state of existence!

We must rid science of the foolish, scientifically illiterate view, as expressed by the pathetic Isaac Newton, that the universe is like a grand clock which would run down, unless the Creator were to wind it up again, from time to time. As Heracleitus' referenced aphorism points out, the design of the universe is based ontologically on a primary, underlying general principle of *continuing ontological change. All valid universal physical principles express a universality of eternal change of ontological state of the universe as a whole.* Any universe which were organized in a different mode than this, would be uninteresting for serious policy-shapers.

This principle of *universal change* may be fairly described as *inherently anti-entropic.*[12] This notion of "anti-entropy" is, implicitly, the essence of the notion toward which Kepler's development of his harmonic view of an actually universal principle of universal gravitation is working, as his reach toward that principle is expressed in such forms as the ordering and evolution of planetary Solar orbits.

Change is not something acting on the universe from outside; change, as expressed in the form of discovered universal physical principles, is not merely inside the universe; it, the principle of change, not static conditions, nor repetition of the sameness, is the internal essence of the very existence of the universe. *Thus, God is inherently creative, as are man and woman as identified in* ***Genesis*** 1:26-31; otherwise, He would not be the Creator, and those who believe differently could not be, for example, Christians.

The worship of entropy is Satan, and the worship of entropy as a principle, as, for example, doctrinaire "zero economic growth," is Satanism in practice.

However, while what I have just stated is true, there is something more to be added to this, as I shall identify that, soon, at the appropriate point below.

The significance of what I have just written here, thus far, is, that the Biosphere represents a higher state of organization than the pre-biotic; and, that the Noösphere represents a higher state of organization than the Biosphere. Idiocy would be, the adoption of policies, such as some silly, but recently influential "environmentalist" delusions, which promote such actions against nature as a whole, as actions which would seek to curb the progress of the Noösphere on the pretext of defending the relative advantage of the Biosphere. I repeat: Such deplorable "environmentalist's" or comparable follies, would be, and, in actual fact, have been, during about the four recent decades, the implicitly Satanic promotion of entropy in the global system in which we exist. This is seen clearly, when the trend of the planet's development is considered as a whole dynamic process.

Granted, the proper kind of policy-making, includes the intention to avoid inappropriate innovations; but, that would be no excuse for policies, such as extensive use of windmills as a source of power, which increase the relative entropy of the system, and thus impoverish the economy and population as a whole.

An Example: Energy or Power?

Among the first steps required, to arise out of infantile-like fantasies, into competent economic policy for today, is to drop today's accustomed, silly use of the word "energy." During the course of the late 1970s and the 1980s, the Fusion Energy Foundation adopted the term *energy-flux density.* This compromise in our use of terms, emphasized the standpoint of physical chemistry, in which there is a clearly manifest progress, upward, from using sunlight as a source of direct power for such actions as simple human use, or, the burning of wood, the burning of coal, the burning of coke, the combustion of petroleum and so-called "natural gas," as compared to nuclear-fission power, and thermonuclear-fusion power. We also glance in the direction of an apparently more dense quality of power, several orders of magnitude greater than thermonuclear fusion, which is called "matter-antimatter" reactions, for lack of a more appropriate name for the latter.

So, we trace an upward track from Solar radiation per square centimeter cross-section, through burning of material, to atomic, nuclear, thermonuclear, and still higher densities. The progress of culture is to be measured in rates of increase of the anti-entropy of the system, a policy which includes

12. I.e., the absurdity of the notion of an essentially entropic universe, as peddled by such creatures as those inhabiting Bertrand Russell's own version of his crony H.G. Wells' ***Island of Dr. Moreau,*** Professor Norbert Wiener, John von Neumann, and their fellow-dupes of the "information theory" hoax.

the upshift to increasing "energy-flux density" in modes of production and operation of basic economic infrastructure.

In this, there are certain anomalies.

Take, first, the case of the human use of Solar radiation, which is of principal significance in its expression as a product of a thermonuclear process called our Sun. The direct consumption of this radiation dumped onto the Earth's human beings is relatively very inefficient when compared with the anti-entropic benefits of photosynthesis by relevant living organisms. Using Solar radiation as one of the principal direct sources of power, or Solar power expressed by use of windmills, or growing crops to be consumed as a source of substitute for petroleum, are currently popular varieties of what must be fairly described as an implicitly culturally suicidal expression of virtual idiocy. By studying the process of photosynthesis by the chlorophyll molecule, and also those other molecules which have a comparable function in kinds of living processes other than green plants, we are forced to recognize how foolish society is, each time it consumes solar radiation as a source of "inorganic" power, as compared with the global function of the consuming of Solar radiation in the negentropic actions of chlorophyll.

The proper physical-economic policy of our planet should emphasize the increased productivity of both man and nature per square kilometer of each and every square kilometer of the planet. This measurement must take into account the fact that what exists, or is being invested in physical improvements today, has a life-span under expected rates of use. Looting the future, may appear to be profit to foolish people, but those people should not be tolerated in relevant positions of responsibility.

We are faced with an increase of population, such that the attempt to curb that factor of increase in incurred cost would be counterproductive for the world as a whole, per capita and per square kilometer. The source of increased physical productivity, per capita and per square kilometer, is the increase of the creative potential and related opportunities for practice per capita. This signifies an improved standard of living and culture per capita; it signifies an increase of the intellectual power of the nation and planet as a whole per capita, in each succeeding generation. It signifies the development of both modes of production and supporting basic economic infrastructure, measured in physical terms, per capita and per square kilometer.

Thus, it is the application of these criteria, top down, over a forward span of not less than two generations, globally, which must be the standard of measure for the assessment of current economic activity. The rate of realization of these physical goals for humanity's habitation of our planet, must be the proximate standard of measure of the entire economy, and that measure of the entire economy must be the premise for assessing the local contribution during the approach to the near horizon.

Our Universe, in Principle

The currently known evidence is, that our universe has four aspects, three distinct phase-spaces, and one, higher, inclusive domain of action. The three phase-spaces, as defined by the Russian Academy of Science's V.I. Vernadsky, are, in order of lower to higher: a.) The abiotic domain; b.) the Biosphere; and, c.) the Noösphere. The required principle which accounts for the distinct and combined development of each and all of the interacting lower three phase-spaces, expresses the principle which, according to the implications of ***Genesis*** 1:26-31, has the form of the creative powers of the mortal individual's developed state of individual human mind, but the principle subsuming human existence is of a higher order of magnitude, that of a willful power specific to a domain which we mortals may regard, as from below, as located ontologically within a simultaneity of eternity, the domain of a Creator.

Each and all of the lower three phase-spaces, are characterized by a universal principle of development, in the sense of Heracleitus' aphorism, as that aphorism is read from the standpoint of Plato's reference to Heracleitus' view, as implicitly in Plato's ***Parmenides*** dialogue.

For example, the Solar system itself is to be seen as the product of a self-development of a young, fast-spinning Sun, whose generated product was transformed into something like the original Mendeleyev Periodic Table with its attributed isotopes, that within a Solar system generated and organized pretty much as Kepler understood the nature of its organization as a dynamic process, as I shall describe this, summarily, as a Riemannian manifold, here below.

In effect, therefore, each of the lower categories is a subspace of the relatively higher, but is separated from the relatively lower by an additional universal physical principle.

These considerations typify both the situation and obligation of the human species, and individual person within our universe. The development of astrophysics since Kepler provides the context for a needed pedagogy.

Kepler's view starts implicitly with the Sun, and, therefore, the galaxy of suns within which our Solar system is located. On this point, since the popularized doctrines of astrophysics are polluted with the reductionist influences currently hegemonic in academic life, available speculations on the state of the universe prior to the existence of suns, were better put aside in approaching the narrower concerns on which our attention should be focussed, for practical purposes, here.

That said, the image we have from the best scientific sources available to us in the public domain, thus far, is that the Solar system was generated as a higher state of organization by the Sun. The problem today, is that the inquisitional-like effort of the hegemonic Babylonian priesthood of academia to put Cusa, Kepler, and Leibniz aside, in favor of the empiricist religious faiths called empiricism and materialism,

Johannes Kepler's revolutionary discoveries "provided the basis on which all leading accomplishments in European physical science have been centered since."

has more or less successfully impeded progress beyond Kepler's own richly confirmed study of what he knew as the Solar system. The development of the Biosphere out of the dynamic development within the Solar system, permits us to draw a limited range of firm conclusions, especially those bearing on the work of Vernadsky. What we know of the dynamic characteristics of the Noösphere beyond what Vernadsky presented, is largely concentrated in my own work in the field of a process of physical-economic development of societies as that process could have occurred, and could be continued in no way but in correspondence with my own refutation of the relevant "information theory" hoaxes of Norbert Wiener, John von Neumann, et al.

If all of this is the expression of the Creator of this finite and unbounded, or self-bounded Riemannian universe, as Albert Einstein saw it, then there is a grand design somewhere in this unfolding process of which we are the part to which I have pointed here. Whether or not we could know the objective of the design, is an irrelevant question; it is sufficient that we attempt to adduce the direction in which all this universal development is leading, and to adduce the part which mankind plays in it.

At a certain point in this process, we were created as a species as I have described that here. Our proximate mission is clearly that of bringing our affairs on Earth to such an effect that we have some proximate mission in the management of the Solar system itself. However, it could not possibly end there. Something is in progress within the development of this finite universe, something of which we have presently little more than a tiny inkling; but it is something which involves an intended role for mankind, something of which our present existence may be ultimately a part.

This supragalactic view of our place in this scheme of things, should impel us to look back to a point being developed here earlier.

When we discover a universal physical principle, as Kepler, uniquely, discovered gravitation, we act upon that discovery, treating it not simply as something observed, something we have just learned from a visit to a galactic zoo. Often, more and more, our discoveries of principle prompt us to act upon the universe in a manner, and to an effect to which that universe has not been subjected before. On reflection on this point, we should be reminded that the universe is not a fixed Creation, but an ongoing process of creation, introducing new states to the universe: states which did not exist earlier.

In reflecting on that point, we gain a needed insight into the meaning of creation itself, particularly what man has created, by enabling him to act on a principle of whose existence he had not known before. Therefore, intention could not be limited to points on a pre-existing map; we, by acting on valid discoveries, are changing the map of the universe, by activating discovered universal principles in a way they have not been applied before. Such, is our best estimate of the intention of the Creator.

The prevalent dogmas within the globally extended European-based political-economic culture of today, proceed from the variously stated, or necessarily implied view of mankind as originally of the quality of a human herd. In that variously implied or explicit view of mankind as ontologically a kind of herd, or assortment of herds, no allowance for an actual creative (noëtic) principle of mind exists. Human beings with a certain implied resemblance to mechanical contrivances, and also matching desires and other passions as kinds of tropisms, are portrayed as a kind of more or less boisterous, sociological aggregation of a collective form analogous to Boltzmann's Machian conception of a thermodynamical gas. In fact, this view corresponds, otherwise, to the anti-humanistic policy of the Prometheus-hating, mankind-hating Olympian Zeus of Aeschylus' ***Prometheus Bound.***

Different sexual positions for practice of copulation or who-knows-what serve some sociologists as paradigms for illustrating an assigned meaning to the term "creativity," but the idea of the individual act of an experimentally validated discovery of a principle of the universe does not exist in our classrooms, textbooks, or the generality of educated or other general opinion.

Thus, the notion of the creative intellect, such as the discoverer of a universal physical principle, must be defined in terms coherent with the objective of realizing individual man or woman as in the image of the eternal Creator.

Physical Versus Monetary Values

In modern society since the Seventeenth-Century emergence of the empiricist system characteristic of Anglo-Dutch

Liberalism and its inherently imperialist impulse, the prevailing dogma of that system's ruling, virtual Babylonian priesthood, has been that made variously famous and infamous by the shamelessly wicked Bernard Mandeville of ***The Fable of The Bees*** notoriety.[13] Mandeville's argument in that location is paradigmatic Liberalism of the specific type common to John Locke, François Quesnay, David Hume, Turgot, Adam Smith,[14] Jeremy Bentham, and John Stuart Mill.

The common paradigm attributes the luck which makes some men rich and powerful, and others poor and miserable, to something akin to "little green men" wielding magical powers capriciously from under the floorboards of the universe. It is the casting of crooked dice, or similar devices by these curious creatures which Mandeville et al. imply as determining the fate of men and nations, not the production of wealth useful to the well-being of society per capita and per square kilometer. Hence the moral depravity presented as economics by obscenities typified by the American Enterprise Institute and Mont Pelerin Society.

The actual American System of political-economy is based on thought typified by the pre-1688 practice of issue of scrip by the Massachusetts Bay Colony. The return to this principled practice of that Colony was demanded by Cotton Mather, as Mather on the principles of public credit was echoed by Benjamin Franklin's 1729 ***A Modest Inquiry into The Nature and Necessity of Paper Currency.*** This developing tradition within the North American English colonies was incorporated as a central feature of the U.S. Federal Constitution, reflecting our constitutional commitment to permit no private financial institution, domestic or foreign, to have power over that of our Federal government, especially in matters pertaining to public credit and uttering national currency.

Contrary to the common folly of the nations of Europe, among others, in permitting the private interests embodied in so-called "independent central banks" to exert control over the sovereign powers of government, we jealously defend the powers of government respecting national credit and national currency against all attempted overreach by foreign governments and private powers such as the so-called "independent banking systems" which have been the commonplace mortal affliction among nations of Europe.

Nor, within those boundaries defined by the principle of national sovereignty, is there any means by which the free circulation of any currency or its like could be a competent mechanism for foreseeing the relative value of a purchased item or investment in public or private enterprise several or more years in advance of the present. There is, in short, no natural correlation between a free circulation of currency and relative physical values within a national economy, or among economies.

Rather, it is the responsibility of government, as of other purchasers or investors, to foresee the relative value of an investment, commodity, or practice over the medium to long term. These kinds of rational estimates by governments must be premised on the foreseeable evolution of the intended pattern of development of the society and its economy over the medium to long term ahead. The validity of such medium-to long-term decisions depends on systems of agreements, private and public.

Against that background, we may skip over some connecting points, to go directly to the relevant matter of the way in which Federal regulatory and related measures instituted, most emphatically, by the Franklin Roosevelt Presidency, address the reality of the way in which the recent thirty-five-year wrecking of the system of so-called "protectionist measures" has bankrupted what had been, into the late 1960s, the most powerful economy the world had ever known, a U.S.A. still, even then, dominated by the system of regulatory protection of the economy which had been installed under FDR.

There have been four outstanding aspects of the way in which deregulation has virtually destroyed the U.S.A.'s economic stability today: 1.) The Nixon use of a flight into the disease of "Friedmanism" as a prelude to the wrecking of the world monetary-financial system through the breakup of the Bretton Woods system; 2.) The massive deregulation conducted under the 1977-1981 Carter Administration; 3.) The post-October 1987 lunatic binge ("financial derivatives") of Federal Reserve Chairman Alan Greenspan; and, 4.) The sheer economic-financial lunacy of the Bush-Cheney Administration. These are not the only important factors, but they have been the most crucial among the blunders of U.S. policy over the 1968-2006 interval to date.

The underlying common feature of these and related, ruinous measures can be summed up in one word: "deregulation." The single most ruinous feature of the entire period 1968-2006 to date, has been the interweaving of the collapse of basic economic infrastructure with an increasingly wild emphasis on "free trade."

Under any continuation of those trend-features of that 1968-2006 interval, the U.S. is doomed to not merely a new

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13. Bernard Mandeville, ***The Fable of The Bees or Private Vices, Public Benefits*** (1734) (London reprint: 1934). On Mandeville's significance in laying the ideological foundations of Anglo-Dutch Liberalism, see H. Graham Lowry, ***How the Nation Was Won*** (Washington, D.C.: Executive Intelligence Review, 1987), pp.341-348.

14. Adam Smith echoes Mandeville in not only his 1776 anti-American tract against the U.S. Declaration of Independence, his ***The Wealth of Nations*** which was largely a plagiarism of Quesnay and Turgot, but, earlier, Smith's 1759 ***The Theory of the Moral Sentiments,*** where he writes: "Nature has directed us to the greater part of these by original and immediate instincts. Hunger. thirst, the passion which the two sexes [e.g., the pimp and the customer's purse], the love of pleasure, and the dread of pain, prompt us to apply these means for their own sakes, and without any consideration of their tendency to those beneficent ends which the great Director of nature intended to produce by them." Thus, the moral, and physical-economic degeneration of both the U.S. economy and the morals of our nation since 1968-1972, is reflected in the resort to legalized and other gambling as a substitute for the actual old-fashioned ways of earning of both private and public revenues.

world depression, in the sense "depression" was understood in the Europe and Americas of the 1930s, but the more calamitous form of a general breakdown-crisis of the present world economic-financial system. However, there are alternatives. The pivotal issue is the need to put the U.S. banking system, the Federal Reserve System, into bankruptcy, under U.S. Federal Government receivership. Much of the paper involved, including current mortgage values, financial derivatives obligations generally, and so on must be savagely discounted, or simply discarded as financial derivatives must be. However, this means that the U.S. Federal Government must intervene to keep the doors of the banks open, and their functional role in maintaining the current level of physical economic support of levels of employment, production, and essential services, while also serving as a conduit of long-term Federal credit at rates of 2% simple-interest, or lower, needed to stabilize impaired banking institutions and also stimulate growth of employment and output to national and regional levels above break-even.

The presently indispensable turn to such kinds of measures must be matched by a reinstitution of the kinds of Federal regulation which came out of the 1933-1945 interval of recovery from the deep Coolidge-Hoover depression of the national economy.

That is not "socialism," contrary to the reckless babbling of some. Indeed, solid economic conservatives of the 1950s would have called this a change back to a "fair trade" policy, as an escape from the syphilis-like effects of recent decades' whorish dalliance with a street-walker's sort of "free trade" policy.

Such a change in policy depends upon building a long-term fiscal stability in the system as a whole. Such a system means scheduling flows of credit and repayments. This scheduling depends upon an implementable schedule of physical investments, and so on. The design and development of such a long-term system of investment in growth of physical output and productivity, per capita and per square kilometer, planet-wide, requires that we place the primary emphasis on physical values, and physical productive processes, and design the monetary, financial, and taxation policies to conform to broad and efficient agreements on long-term turnover of credit advanced, as capital, for investment in a realizable system of physical-productivity-oriented investments in basic economic infrastructure and private production investment.

In the present circumstance, there will be either global economic recovery through cooperation of a new quality, or there will be no global recovery for anyone in any part of the world as a whole. The pivot of the only possible such recovery will be major, sudden U.S. reforms from all current and recent trends in its policies of practice, toward cooperation with a Eurasian complex of long-term development rallied around Berlin, pivotted around Russia, and engaging the long-term development of Asia as a whole. Such recovery, using Berlin's restoration as an industrial and global transport center of air and rail transport, will be measured in unit investment-blocs of twenty-five and fifty year maturities for long-term treaty-based credit for major infrastructural and agro-industrial programs.

A similar arrangement is required for the U.S.'s relations with the other states of the Americas, while the Eurasia and America blocs, through their mutual concerns, will undertake the rescue of sub-Saharan Africa as a whole.

The capital issued in the form of long-term credit, under a newly created fixed-exchange-rate, global monetary system, will be required to coordinate this great mass of long-term credit at low fixed rates. The ratios of values throughout the world will, consequently, be dominated by the sheer mass of these combinations of state-to-state long-term investment credit. The model for management of economic relations among regions and their component sovereign nation-states, will be the model of the success of the reforms of the U.S. and its international monetary and trade relations with then-friendly states.

There will be cooperation on the greatest scale in all history to date, but, as a certain American poet wrote: Good fences make good neighbors. In this undertaking, the fences are those of measures of economic cooperation premised on physical economy first, and money second.