

RETORT TO THE NEW YORK TIMES

Music: Science Or Fantasy?

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About five decades ago, in the course of a not untypical case from my past career as a management consultant, an associate and I discovered conclusive proof of a relatively significant industrial theft by insiders, by attention to a kind of “purloined letter.” The relevant evidence was a large deposit in plain sight, but, like most stolen objects, was in plain sight where one should have suspected it to be: outside the firm being audited, in a not distant junkyard. Now, similarly, seemingly trivial clues, such as a seemingly routine book review by the *New York Times*’ Edward Rotstein, may attract the attention of the witting to a seemingly little matter of actually great importance. The hoax on which I am focused at this moment, is a strictly Sophist trick which, as U.S. counterintelligence officer Edgar Allan Poe would have shown, Rotstein foists upon himself: his seemingly casual assertion, that the performance of what is, at worst, nominally Classical musical composition, no longer has the social function it enjoyed even a generation ago.¹

Obviously, the popularity of performances of great music according to the Classical tradition shared among Bach, Mozart, Beethoven, and Franz Schubert, for example, has fallen off greatly since the famous generation of the “white-collar” breed called “Baby Boomers” was plummeted into its adulthood. The question to be considered here, is whether, as Rotstein implies, it is Classical music which has failed, or, is it the presently hegemonic setters of public tastes who have failed disastrously in the role of art, as they have also failed, not only in both science and economy, but with a Sophist’s minimal respect for even bare personal integrity in the domain of ideas?

1. See end note, on the method of Edgar Allan Poe.

In the particular instance of the “Arts” section of the July 2, 2007 Times, reviewer Rotstein had presented a commentary under the title “Classical Music Imperiled: Can You Hear the Shrug?” That piece was his commentary on the theme of a new book, by Lawrence Kramer, titled Why Classical Music Still Matters. Rotstein wrote: “It is the kind of title that would not have been used a generation ago....” To come to the crucial issue of the matter I am addressing here, Rotstein shows no inkling of what the real issue is not; and, if reviewer Rotstein has not abused Kramer on this account, Kramer, like many others among the ranks of his genre, has similarly missed the crucial point.

Therefore, as you shall read below, my subject here is not Kramer’s book, but the behavior exhibited in Rotstein’s use of the occasion provided by the book, to produce his own notable bit of folly, the folly whose appearance has prompted me, now, to present to you the real-life context of the tragic interaction of that reviewer with that book’s author.

*“...Amos Cottle—Phoebus! what a name
To ... [bear the weight of] future’s fame...!”*

Shades of Lord Byron’s *English Bards and Scotch Reviewers*! The errant opinions expressed on the subject of the shifting meanings of “popular” among European musical entertainments, as by both Lawrence Kramer and the *New York Times* reviewer Edward Rotstein, as many others, are a subject in itself. Rather than enmesh ourselves within the bounds of such follies as those, we must seek the remedy for their axiomatic blunders on the subject of varying musical tastes. This is a remedy which must be found in those much deeper places from which the truly essential role of music in human existence has sprung.

This case of Rotstein’s product, reminds us that coinci-



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Luca Della Robbia's relief sculpture of choir boys, singing in the *bel canto* mode, under the dome of the Cathedral of Florence. What are the scientific principles that underlie musical polyphony?

dences abound in life, especially those cases which are not merely coincidences. There is an element of merely apparent coincidence in my responding to his argument *in this way*, at the present time. Although the premises for the views which I express here, are matters of my own longstanding concern, it is what I have introduced as a crucial point of added emphasis, in my remarks on the recent work among my associates, on the subject of the role of harmonics in Johannes Kepler's discovery of the universal physical principle of organization of our Solar System, which has produced the working, public environment through which a broader discussion of the blunder by Rotstein can now, and must be given the kind of broader public attention which I prescribe here.²

Specifically: the existence of human qualities of musical composition and its performance, lies within the geometry of a human existence which dwells, in turn, within the harmonics of Kepler's uniquely original discovery of the principle of

2. Notably, "working environment" is an allusion to relevant work being done, as a coordinated effort, by young-adult associates, in replicating the ancient and subsequent foundations of modern physical science, from Pythagoras through Riemann, as this overlaps experiencing the challenge of the strict Florentine *bel canto* required for insight into the performance requirements of the motets of J.S. Bach, such as the *Jesu, meine Freude* of Bach, and Mozart's *Ave Verum Corpus*. This includes the matter of that science's relationship to the role of *bel canto* vocal practice of J.S. Bach's expression of his method, and that of his faithful followers, such as Wolfgang Mozart and Ludwig van Beethoven, throughout their development of the application of Bach's method of well-tempering. That the participation of people in both projects, art and science, simultaneously, as indivisibly one, rather than two parallel tracks, is a crucial practical basis for promoting practical comprehension of the issue of music which I address here. Reference to C.P. Snow's *Two Cultures* is implied.

organization of the Solar System which we presently inhabit. I am speaking, thus, of Kepler's founding, in fact, of that modern experimental physical science which had been founded, implicitly, with Cardinal Nicholas of Cusa's recognition of the scientifically fatal error inhering in Archimedes' attempted quadrature of the circle.³

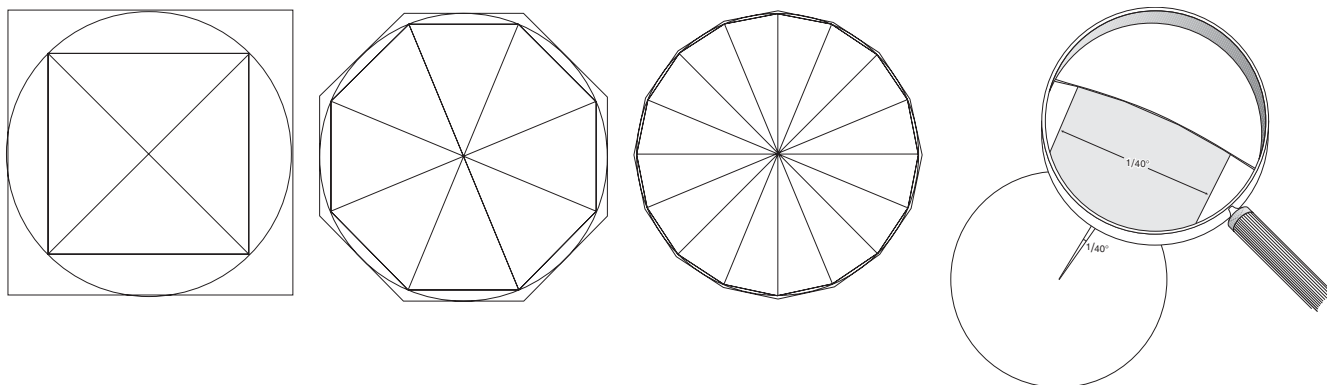
As to the narrowly defined subject of music itself, in looking at the surface of the matter, the solution for the riddle so posed, lies in the way in which the exquisitely exceptional Classical methods of composition of such Classical composers as Johann Sebastian Bach, Wolfgang A. Mozart, and Ludwig van Beethoven, address the essence of that specific principle of Classical artistic composition which distinguishes the human species, categorically, above the members of all other living species.⁴ This essential

connection of competent science to Classical art, could not be considered a riddle, once the student had grasped the notion of a certain essential convergence of Johannes Kepler's harmonics of the Solar System, and Johann Sebastian Bach's related founding of the principles of well-tempered counterpoint attuned to the Classical, Florentine *bel canto* vocal principle.

3. It was Nicholas of Cusa's recognition of the fallacy of Archimedes' tactic, which has been the central discovery underlying all competent forms of modern science. This is the discovery echoed in Kepler's discoveries of the principle of both the Earth-orbit and gravitation, a discovery which was the basis for Kepler's instructing his successors to develop both an infinitesimal calculus (of Leibniz) and the generality of the physical principle of elliptical functions. This same conception is the crucial, ontological principle which underlies the entirety of my argument here.

4. For relevant musical references from the keyboard works of Bach, Mozart, and Beethoven, look at Beethoven's Promethean anticipation of Brahms in measures 60-86 of the *Adagio Sostenuto* movement of the Opus 106, and turn, then, to the *Coda* of the Opus 111, measures 21-49, but, most emphatically, Beethoven's own frequently referenced, Promethean reflection of Mozart's reflection of Bach's *Musical Offering*, as this aspect of Mozart's K. 475 serves as a crucial transition to the empyreal, in the measures 20-49 of Beethoven's 111, where Mozart is quoted to crucial effect, in Beethoven's measures 38-49. Here, freed from the obscenity of the Apollo-Dionysus cult, we find, typified, Beethoven's uniquely flavored experience of the discovery of the use of the prohibited power of the fire of the creative faculty of creation of true ideas! Compare this, as I have often done, with the notion of irony as presented implicitly in William Empson's *Seven Types of Ambiguity*. The importance of this role of the apparent discontinuities generated as expressions of the creative faculty, in both science and art, is virtually lost, largely as a result of the influence of positivism and existentialism, among both scientists and art critics of the presently hegemonic generations born after the close of World War II. The role of imitations of bird-songs in the work of Lucca's Boccherini, reinforces, rather than challenges that contrast.

FIGURE 1
Quadrature of the Circle



Nicholas of Cusa showed that Archimedes' attempt at "quadrature of the circle"—to approximate the value of pi—was ontologically incompetent. The first three drawings show the process of estimating the area of a square approximately equal to that of a given circle, as the average area of two regular polygons. In the last drawing, although the inscribed polygon of 216 may seem to closely approximate a circle in area, it actually contains a devastating paradox. There are slightly more than 182 angles of the inscribed polygon within each degree of circular arc.

Thus, when we focus on the subject of a rigorous system of musical polyphony as such, we must discover the principled foundations which underlie the process of development leading from the sculpted Florentine *bel canto* voices of the children, which, when seen compassionately by the witting visitor, sing to our eyes still under Filippo Brunelleschi's great dome built upon Florence's Santa Maria del Fiore. This is continued through the surviving fragments of Leonardo da Vinci on music, through Kepler, into J.S. Bach's founding of the medium of Classical musical composition and its performance.

However, once we have situated the topic of music *per se* in those relevant ancient (e.g., Pythagorean) and also modern European Classical terms of reference, our attention is turned more emphatically to C.P. Snow's celebrated *Two Cultures* thesis, the merely customary dichotomy of science versus art. On this account, we must focus our attack on the essential silliness of a widespread, illiterates' silly superstition, respecting what is, allegedly, the merely imagined, categorical separation of the methods of a competent science from principles of composition of Classical modes in art. The anti-Romantic thinker Percy Shelley's *In Defence of Poetry*, is exemplary in the English language.⁵

5. The following point respecting today's customary misuse of the term "Romantic" is obligatory. "Classical," the antithesis of "Romantic," is a notion rooted for literate modern usage in the Classical Greek opposition, as by the Pythagoreans and Plato, to the Delphi Apollo-Dionysus cult and the latter's formal Sophistry. Strictly speaking, the Classical legacy was resuscitated in modern Europe by the A.D. 1439 Council of Florence, as typified by Nicholas of Cusa and such among his explicit followers as Luca Pacioli, Leonardo da Vinci, and Johannes Kepler. "Classical" is the characteristic of William Shakespeare, and of Gottfried Leibniz and his circle. "Romantic," as the term

In other words, Rotstein's view of the decadence of currently prevalent "musical taste," is an intrinsically—systemically—incompetent one, and clearly so if one is speaking in respect to the fact that he references only the sundry Romantic, or even more sordid existentialist fictions of recently popular, decadent customs, instead of the reality of the essential function of civilized music in modern civilized forms of life.

is employed appropriately in modern usage, coincides with the Liberalism of Paolo Sarpi and his followers, and with the avowedly insane views on political-economy by such followers of Sarpi and Galileo Galilei as Mandeville, Quesnay, Adam Smith, and Jeremy Bentham, as by the Paris-based Venetian Abbé Antonio Conti. Conti's followers, the Anglo-Dutch Liberals, dominate European culture from the accession of England's George I until the mid-Eighteenth-Century rise of the German Classic among the circles of Abraham Kästner, such as Gotthold Lessing, Moses Mendelssohn, Goethe (off and on), Friedrich Schiller, and such followers of Schiller as the famous Humboldt brothers. As Heinrich Heine, an avowed defender of the Classical tradition details this, the aftermath of the French Revolution, of Napoleon's reign, and the ultra-reactionary Congress of Vienna, unleashed what is properly defined, technically, as modern Romanticism. Thus, in music, Bach, Haydn, Mozart, Beethoven, and Schubert, and Schiller, are typical of a seamless expression of the development of the Classical mode in music and poetry, whereas Heine himself, like Schumann and his contemporaries, are defenders of the practice of the Classical legacy within the setting of a corrupted world of the form of Nineteenth-Century irrationalism called "the Romantic School." American Revolution advocate Shelley's work bridges the connection between Schiller and Heine. The U.S. Declaration of Independence and Constitution are examples of the Classical standpoint's echoes of the Classical Greek of the Pythagoreans, Socrates, Plato, et al. against the Sophist corruption spawned by the Delphi Apollo-Dionysus cult. President Franklin D. Roosevelt is an echo of the Classical tradition, against the typical Sophists associated with the names of Teddy Roosevelt, Woodrow Wilson, and Calvin Coolidge, as also against Harry S Truman, Nixon, et al. The Baby-Boomer generation as I have detailed its genesis and character clinically, provides examples of "The Romantic School."

He commits the typically immoral act of those modern philosophical Liberals who follow Venice's Paolo Sarpi, the Sarpi who rejects the very notion of the existence of truth, from his vantage-point within the form of the arbitrary authority of current popular opinion, the standpoint of the Sophist's form of popular lying termed a "consensus."

The outcome of that moral and also scientific error, as by Rotstein's piece, is his argument's lack of a sense of any true principle in Classical composition. His error should be classed, clinically, under the topical heading of "the games which silly children have chosen to play." This is not to propose that no actual principle lurks within the subject-matter which they appear to address; it is to insist that both author and reviewer have substituted their own, Sophists' opinions, as replacements for the actually substantive matter of Classical forms: forms which are common to both physical science and musical composition; forms, rooted in Florentine *bel canto* principles, which modern European civilization traces from their refreshed development in the wake of the 1439 sessions of the great ecumenical Council of Florence.

So, similarly, physical science has been crippled by its exclusion, often by hysterical denials, of Classical musical composition's role, which I identify in later parts of this present report, in Classical music's share in the domain of a true physical science. Classical musical composition has been relegated, by Sophists, to a special domain of fantasy, which places Classical art of all forms in a lunatic's domain, outside the world in which we actually exist, the world upon which, in fact, we act, and which acts upon us to shape our fate. Art is left, thus, outside the real world, as entertainments which have no real-universe content.

To restate this crucial observation. We have, thus, the currently widespread mental disorder of modern European cultures, as among many of those, including, notably, musicians and others, which the case of the *Times*' Rotstein illustrates; this disorder is of a type usually termed either the "Liberal," or "empiricist" doctrine of the Venetian revisionist Paolo Sarpi. The opinions on music which have been expressed by him in that *Times* review, typify this problem: the crux of the matter is, therefore, the substitution of a reigning, essentially irrational "consensus," for the quality of accountability to individual reason. These Sophists deny that principle of reason which must reign in any competent practice of physical science, and which should also be recognized as the standard of judgment for Classical artistic composition and its performance.

Therefore, what we must see in Rotstein's view, is a certain currently widespread form of a mental illness, a view called Sophistry, as expressed by Rotstein's locating artistic value in the lunatic, "Clockwork Orange" fantasy-world of a currently promoted notion of a "consensus." This is the root of his problem, a mental disorder which lies within the domain of belief in sense-certainty, which must be addressed as I do in the following pages here.

Then, once that ironical point respecting the follies of sense-certainty were grasped, the differences in opinions on the subject of musical principles, such as the difference in method separating Classical from Romantic modalities in both composition and performance, are not to be considered to be merely matters of taste adopted by some people; but, rather, they must be considered as matters of judging that moral quality of people, or lack of such quality, which is expressed, symptomatically, by the crudely hedonistic, chimpanzee-like preferences in contemporary, prevalent, so-called "artistic" tastes.

I explain. The essential issue with which to begin that exploration, is the following.

1. Out of Both Sight and Sound

It were long past time to free the present generations from those notorious assumptions which included man within the category of the apes, assumptions which were shared by T.H. Huxley, his witting contemporary, Frederick Engels, and their present-day follower, former U.S. Vice-President, and rabidly neo-malthusian "machine-breaker" Al Gore.

Therefore, I must emphasize once more, that whenever the subject of attention is specifically human behavior, we must focus upon the evidence pertaining to the functional difference between the manifest potential relative population-density of man, on the one side, and baboons, chimpanzees, gorillas, and their like, on the other side. Mankind must be contrasted, so, with the record of apes, or creatures like rabid malthusian and former U.S. Vice-President Al Gore, who might regard the increase of the potential relative population-density of mankind as *ostensibly unnatural*. In short, we must distinguish what is characteristically human behavior, qualitatively, from the behavior of both apes, and of people who seek to make virtual monkeys of themselves and their neighbors alike.

So, we, like Academician V.I. Vernadsky, must distinguish the human individual, a member of the *Noösphere*, from the lower forms of life found among other inhabitants of our *Biosphere*. This *systemic* difference is a result of exactly one crucial quality of the human individual which is absent in all lower forms of life. That quality of difference, is the principle of creativity typified by the work of such figures as the uniquely original discoverer of universal gravitation, Johannes Kepler, and by the greatest among the Classical composers who led the Classical school founded by Johann Sebastian Bach.

As I shall elaborate the crucial fact of the matter here, it is this power of creativity, which is typified by Kepler and Bach, which sets the human individual absolutely above lower forms of life such as the great apes. This difference is expressed *ontologically* (as distinct from merely formally) as that notion of the *ontological* actuality of the *infinitesimal*, whose discovery is traced to Nicholas of Cusa, which is the

central feature of Johannes Kepler's discoveries, and is also the expressed element of creativity central to the work of Gottfried Leibniz: a faculty of creativity which is not manifest among the mathematical schemes of hoaxsters such as Isaac Newton, or the empiricist doctrines of D'Alembert, Lagrange, Laplace, Cauchy, Clausius, and Grassmann, or the examples from the concluding, decadent decades of Euler's life.

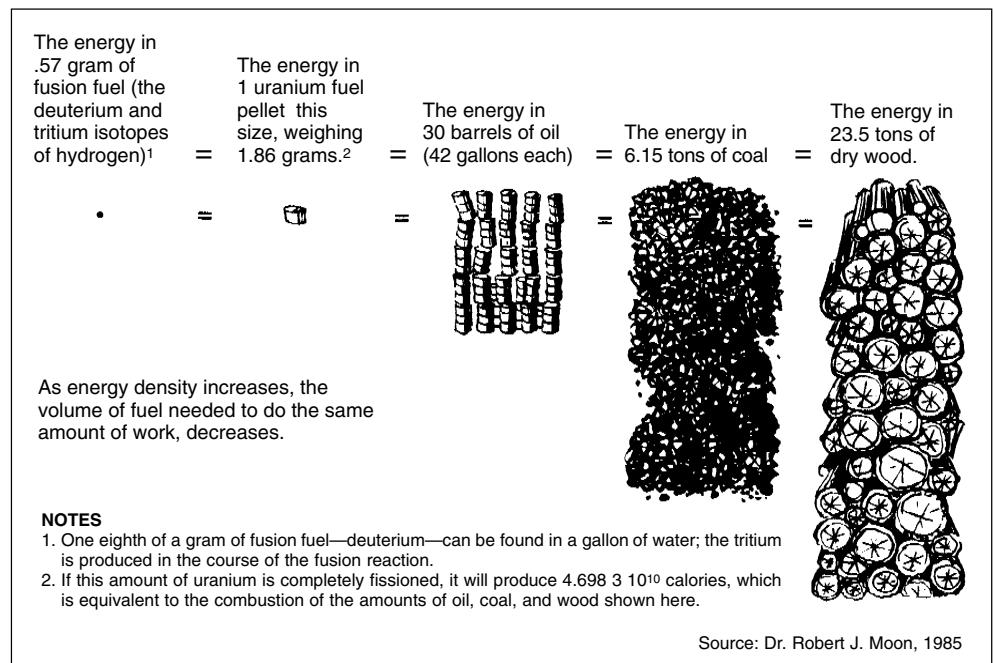
So, when our population is viewed at close range today, it often appears to that careless observer who overlooks what is, in fact, the *ontological infinitesimal*, that the difference of man from beast, is slight, and almost accidental, if it were to exist at all.

Yet, when we consider the increase of effective potential relative population-density, per capita and per square kilometer, we must observe that increase throughout the historical span of the post-1439 rise of modern European culture's civilization, and through the spread of the technological benefits of that culture to Asia and elsewhere. We see that the quality of difference between what Academician V.I. Vernadsky classed, respectively, as *Biosphere* and *Noösphere*, is an awesome, decimals order of magnitude, and, looking back further, truly qualitative.

The increase of *the potential relative population-density* of entire cultural groupings among us, expresses efficient principles which are, in and of themselves, invisible to what are assumed to be, impulsively, the merely biological form of the human sense-perceptual functions.⁶ Yet, the increase of society's potential relative population-density from simple use of sunlight, and the wind and rain which sunlight produc-

6. The better choice of term were not "invisible," but rather "infinitesimal." The fraudulent attack on the infinitesimal calculus of Leibniz by de Moivre, D'Alembert, Euler, Lagrange, Cauchy, et al., depended upon the ontologically fraudulent assumption, by those reductionists, that Kepler and Leibniz intended "infinitesimal" to signify the smallness of a dot, rather than an action of an ordered, perfectly constant change of "vector" in a continuing process. See, Leonard Euler, *Letters to a German Princess* (1761). During the middle of the Eighteenth Century, Euler who had been a student of Jean Bernoulli, "went over to the other side" out of political opportunism. Euler, who was among the most skilled of the pack of scoundrels including D'Alembert, Voltaire, Lagrange, and their followers Laplace and Cauchy, committed what he could only have seen as a childish fraudulent trick in his attempt to lure the Princess into the neo-Cartesian camp.

FIGURE 2
Fuel and Energy Comparisons



es, through the introductions of water-power, burning of wood, coal, coke, petroleum, and now nuclear fission, is expressed symptomatically in terms of functions of increase of the apparent energy-flux-density per square centimeter of cross-section of the relevant process. The development of those human choices of improvements in "energy-flux density," and, crucially important, the technologies by means of which those resources are developed by man, and may be effectively employed by man, exemplifies the role of those powers of the human mind which set what passes for our species' cognitive behavior, as apart from the category of the behavior of the beasts.

Such increases in *potential relative population-density* by man's societies, when they occur, have an ontological characteristic which does not exist as a measurable object in geometries of the type associated with either Euclidean traditions, or Cartesian-like forms of mechanistic-statistical systems. In other words, the most important feature of the existence of the human species, has a specific quality of efficiently expressed ontological character, a qualitative distinction which does not exist in formal reductionist forms of physical geometries; it is, rather, of the same character as that of the ontologically *efficient infinitesimal* cause in what Johannes Kepler, Gottfried Leibniz, Gauss, Riemann, et al. recognized as the physical-elliptical, functional orbit of planetary and comparable forms of astronomical and comparable cycles.

Insofar as we attempt to treat this crucially significant distinction of human behavior from that of any beast, even merely by viewing the subject from an axiomatic standpoint of

some assumedly self-evident authority in sense-perceptions, we were plunged, thus, into the kind of states of irrationalism typical of such Anglo-Dutch Liberal followers of Venice's Paolo Sarpi as Hooke, Locke, Mandeville, Quesnay, de Moivre, D'Alembert, Leonard Euler, Lagrange, Laplace, Cauchy, et al.

This means, in our reference to musical principles here, that, insofar as we attempt to locate the relevant sorts of required proof-of-principle experiment within the presumedly self-evident bounds of *either* sight *or* sound, for example, we are thrown back into the crude kinds of "indifferentist" methodological irrationalism which are shared among both the crudest materialist currents in history, and their modern empiricist apostles. If we tolerate such reductionist philosophical outlooks, we were, then, thrown, thus, into the "slough of despair," into the pits of a mystical principle of pure gambling, as Mandeville, Quesnay, Smith, and Merton-Scholes have typified this in their fraudulent, wild-eyed gamblers' misrepresentation of political-economy.

So, among empiricists such as Mandeville, Dr. François Quesnay, Adam Smith, and their credulous admirers still today, the regulation of those classes of human behavior which sometimes lead, mysteriously, to increases in the manifest productive powers of labor of societies as wholes, are falsely asserted by each of them, and their like, to be beyond the powers of comprehension of the human mind.⁷ The root of those advantages is asserted to be something altogether magical, and also essentially evil, as if that were the work of the domain of red-eyed little green men under the floorboards of a Cartesian society, little green men casting dice as a way of their capricious free-trading-away of the fate of real persons and nations above.

This predicament is conveniently, and fairly compared to the roots of that intellectual degeneration, which brought ancient Greece's science down from the superior qualities of the Pythagoreans and Platonics, to the state of degeneracy epitomized by Euclid's sophisticated paraphrases of the earlier, valid discoveries of the Classical Greeks. The essential fraud underlying the aprioristic presumptions of *Euclid's Elements*, is the premising of the attempts of ideas of action in physical space, and in physical time, on the notions of a perverted form of what had been earlier, valid discoveries (as by the Pythagoreans, et al.). The reductionists thus employed notions of "self-evident" definitions, axioms, and postulates

7. Take as an example, Adam Smith's crucial argument to this effect, as in his 1759 *The Theory of the Moral Sentiments*, or Bernard Mandeville's flagrant emphasis on gambling. The same conceit as theirs is the foundation of Dr. François Quesnay's Physiocratic dogma; he argues systematically that the farmers on the estate are merely a form of cattle, such that the profit of the estate is produced magically by the paper endowing the indolent landlord with the mysterious and miraculous powers of increase of output over input. The same conceit is central to that argument by Turgot, whom the virulently anti-American Adam Smith, in his *Wealth of Nations*, plagiarized most generously.

which were implicitly derived from a naive reading of the function of the sense of sight, from the brutish standpoint of sense-certainty.

As Bernhard Riemann states the relevant conception in the opening paragraphs of his 1854 habilitation dissertation, the "self-evident" presumptions of the reductionists would forbid us from breaking through the "floorboards." Belief in those aprioristic "floorboards," as seen among the dupes of Euclid and Descartes, confines the minds of the credulous, to the effect of making the believers in such superstitions the hapless victims of the imaginary, but evil demons controlling man's choice of self-inflicted fate, as if from underneath imaginary floorboards.⁸

Within the bounds of the known history of European civilization, man's most notable folly, has been typified by the craven submission of the mass of populations to the dogma attributed to the mythical Olympian Zeus, in refusing to accept the principle of the reshaping of the present, as the future, into the specific, creative powers of the human individual's creative potentials. Such men and women are, in no respect, acting as beings in the living likeness of their Creator. The "fire" which is the issue of Aeschylus' *Prometheus Bound*, is the spark of creativity which expresses itself as Kepler defined the motive of the planetary orbits, as the "infinitesimal," that spark of infinitesimal "fire," the crafting of that calculus which Kepler bequeathed, as a mission, to followers such as Gottfried Leibniz.

The Human Senses as 'Instrumentation'

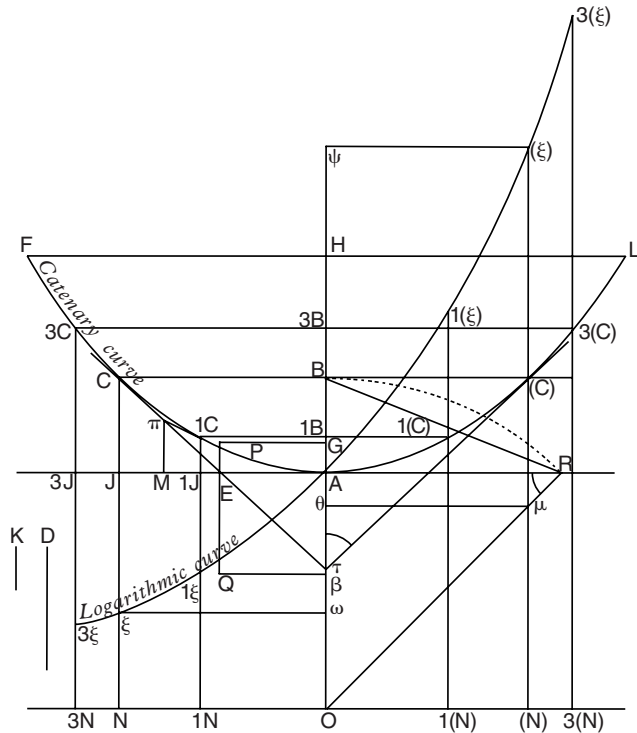
A comparable expression of that commonplace human failure identified here thus far, are those predicaments which are generated, if we attempt to substitute a naive view of hearing for assumedly self-evident notions of vision, or the reverse.

Therefore, the serious thinker will recognize the consequent urgency of defining an improved view of such a paradoxical situation. The needed, modern view of that issue is one based on that practice of modern instrumentation which lets us into the domain of the atomic, sub-atomic, and so on. This view encourages us, thus, to recognize that our biological sense-apparatus is to be treated virtually as a *biological form of instrumentation*, rather than a power affording us the assurances which might be foolishly assumed to inhere in expressions of a self-evident kind of ontological sense-certainty.

All of our senses have that kind of utility associated with the design of crucial experimental tests of principle;

8. That "Satan principle" is illustrated by the cases of those credulous dupes of the Roman imperial tradition who argued, that were the Creator omnipotent, then the perfection of his Creation would have prohibited His interference with what might happen within the universe after that original Creation had been effected. As a beloved Rabbi, now recently deceased, supported Philo against the Aristotelians: The Messiah will come when the Creator decides to send Him.

FIGURE 3
Leibniz's Construction of the Catenary and Logarithmic Curves



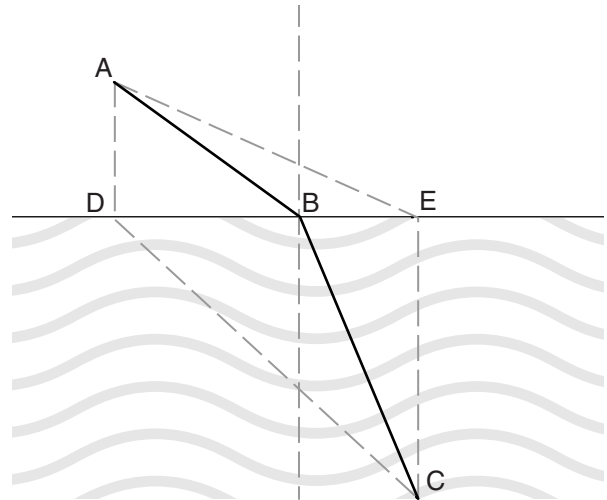
Source: *Fidelio*, Spring 2001

Gottfried Leibniz's work, with Jean Bernouilli and others, on the elementarity of the catenary function, led to Leibniz's development of the calculus.

but, they also call our attention to the imperfections inherent in the design of experiments. However, with that note of caution added, we are thus advised to replace naive sense-certainty, by experimental qualities of that often imperfect search for truthfulness which is presented to us only in the form of the paradoxes produced by giving up belief in sense-certainty. *We must replace brutish belief in sense-certainty, by treating mutually contradictory juxtapositions among our various sensory functions, such as sight versus hearing, as a matter of experimental methods, methods which treat differing, simultaneously applied, modes of both "natural" and "synthetic" instrumentation of the same subject-matter under study.*

To put that same point in another way: we should know, from experience, that when we accept sense-experience as what is called "sense-certainty," we are lying to ourselves. Each of our senses presents us with a certain, specific kind of image of the concurrent experience of the same event actually experienced by two or more senses, in terms which are qualitatively in contradiction to all among the other particular

FIGURE 4
Fermat's Least-Action Principle



Pierre de Fermat in 1661 discovered that the propagation of light follows a pathway of least time, rather than shortest distance. (The diagram shows a ray of light passing into water: AB is the ray in air, BC the new direction of the ray as it enters the water, a more dense medium.) Fermat's discovery was crucial for the work of Leibniz and Bernouilli.

modes of sense-perception as such. *Therefore, truth is that which must be recognized as not the image of reality as presented as the evidence of any type of sense-perception as such.* Truth lies not in perception as such, but in ironical forms of changes within the whole of the lapsed physical space-time of that which we must discover, experimentally, is to be perceived as a relevant quality of change in state. It is the existence of a qualitative change of state, especially an inducible change of qualitative state, which reflects the kind of quality of experience to which the conception of perceptions must be subjugated.

It were sufficient for our purposes here, to apply such an approach to the paradoxical juxtaposition of the faculties of sight and hearing. Consider, for an example of what I have just stated, respecting perception, the most crucial examples of the experimental method of Kepler, such as his discovery of the planetary orbit, and his subsequent discovery of the harmonic principle governing gravitation within the organization of our Solar System. Kepler's discovery of the infinitesimal, the infinitesimal which defines Leibniz's uniquely original discovery of the calculus, and of the physical basis for the physical principle of universal least action (the "catenary principle"); consider the significance of Fermat's discovery of a physical principle of "least action" which was crucial for the Leibniz-Bernouilli discovery of the significance of the catenary function. Each such discovery corresponds to a quality of experimental state of knowledge, a state of knowledge to which simple empirical evidence is ab-

solutely subordinated by such validated discovery of a concept of principle.

For this purpose, take the work of Bernhard Riemann, from the time of his 1854 habilitation dissertation, onward, and take note of the implications of that dissertation for the way a competent physical science coherent with Riemann's argument treats man's sense-faculties. Take into account the crucial ontological implications of Kepler's discovery of the principle of gravitation, as a principle unifying the relations of actions within the Solar System. Take the crucially ironical relationship between vision and hearing (harmonics), from which Kepler's formulation for universal gravitation's role within the Solar System was derived experimentally.⁹

Compare Kepler's harmonic organization of the planetary orbits of our Solar System, with the function performed by the well-tempered organization of musical space-time in J.S. Bach's well-tempered system of composition—as a physical system.

Kepler, among others, has demonstrated, that neither vision nor sound were independently true; it is, and was, the contradiction between the "opinions" of the two "instrumentations" on the same subject-matter of experience, which created, in our mental process, a "third, *transcendental* sense," a cognitive sense, which was neither sight nor sound, nor any other quality of sense-perception: the sense of an efficiently universal principle. Kepler's recognition of the essential function of harmonics within the Solar System as defining the organization of the system of gravitation as a whole, is exemplary. Thus, on this account, Albert Einstein came, similarly, to recognize the work of Kepler and Riemann as benchmarks of a perfectly interconnected process of efficient discovery.¹⁰

In each of the cases which prove to be, similarly, experimentally grounded in universal physical principles expressed between the cracks among sense-perceptions, and also experimental instrumentations which are an augmentation of the notion of sense-perceptions, a universal physical principle is expressed as the physically efficient presence of an "infinitesimal," as the transcendental expression of the willful-like motive which drives the orbital pathway.

9. Although it might be assumed that vision is linear, as the dogma of *Euclid's Elements* implies, Leonardo da Vinci demonstrated the falseness of that assumption for the case of landscape-painting, for example, and in other ways. Linearity of vision exists only in idealized visual projection, as for Euclid.

10. The delusion promoted as belief in Isaac Newton, has been largely responsible for the ignorance of Kepler's and related discoveries among otherwise prominent and qualified scientists, even from among leading representations of my own generation. The corrupting effects of radical empiricism (e.g., positivism) rampant in the German attacks on Max Planck (during the World War I interval) and the 1920s Solvay conferences, were a notably contributing factor in this decadence among otherwise leading scientists. The essential cause of the corruption in science education has remained the brain-washing of the student in Euclidean and Cartesian assumptions during childhood and adolescent indoctrination in radically reductionist assumptions convergent on the Sophistry of Euclidean apriorism.

The most crucial among the celebrated examples of this use of juxtapositions for all modern science, is Kepler's use of harmonics as an essential feature of perfecting his earlier, first-approximation discovery of the organization of our Solar System by the harmonics of its orbital organization. Insight into this specific feature of Kepler's founding of the practice of competent modern science in general, provides reviewers of Rotstein's rant with the key to understanding the intrinsic incompetence of Rotstein's argument respecting the influence of that Classical music which has been composed essentially as a cohering extension of the Bach tradition.

The Case of J.S. Bach

The key to beginning to understand all of this presented here thus far, is provided by examining the work of Johann Sebastian Bach from the vantage-point of Kepler's insight into the harmonic composition of our Solar System. It is, therefore, no mere coincidence, that all competent modern physical science depends upon conceptions of universal principle which lie within the sequence of developments rooted in the discoveries of Kepler (and of Nicholas of Cusa before him), as continued through the work of amateur violinist Albert Einstein.

In retrospect, careful reflection on this process, as from Kepler through Leibniz, Riemann, and Einstein, shows that two steps are essential preparation for such a study.

First, we must put aside the nonsense of attempting to separate the work of J.S. Bach, categorically, from that of Joseph Haydn, Wolfgang Mozart, and Ludwig Beethoven. There is no significant aspect of the work of those later composers which is not an integral expression, and therefore a seamless continuation of the foundations laid by Bach. This was made especially clear through the meetings which occurred, more or less regularly, at the Vienna residence of retired ambassador Gottfried van Swieten, where Haydn, Mozart, and Beethoven, among others, honed their craft in the manuscripts of Handel and J.S. Bach, such as Bach's *Musical Offering*. The exemplary significance of that Bach composition, together with Bach's *The Art of the Fugue*, appears afresh, as a crucial, supremely powerful transition, in the closing argument of Beethoven's Opus 111, reappears with stubborn persistence in all great Classical and composers, from Mozart, through Schubert, into Brahms.

As typified by what I have identified as the "transcendental" principle of instrumentation, above: such music is not intrinsically (axiomatically) instrumental, but is essentially a broadened expression of the principles of both the human mind and our universe, principles which are also rooted in a Classical (e.g., Florentine *bel canto*) polyphony, as typified for general practice by the motets of J.S. Bach. It is the implicitly natural set ("chest") of voices composing a chorus of human types of *implicitly bel canto* singing voices, which define the finite, but unbounded (i.e., "self-bounded") universe of music of the human voice, and the proper range of the human



The sequence of developments rooted in the discoveries of Kepler was continued through the work of amateur violinist Albert Einstein.

singing voices projected upon the range of what András Schiff has recently emphasized to be the Beethoven conceptual keyboard.¹¹ Our attention must be focussed, primarily, on the functional relations within that universe of song so defined. The principle of development displayed in the Preludes and Fugues of J.S. Bach, are the primer in a science of musical art for all decent composition since J.S. Bach, and implicitly since no later than the visible chorus of the boys which may be seen singing still, at last viewing by me so far, in the Florence cathedral of Santa Maria del Fiore.

Does this signify that Kepler's harmonics of the Solar System is the exact model for Bach's well-tempered system of composition? Not exactly. The Solar System, taken in its generality, represents a certain quality of universal phase-space. Music belongs to the domain of the Noösphere. The geometries differ accordingly, but the common universal principle of harmonics, as such, persists, nonetheless: each, belonging to the same universality, must tend to parody one another in the way a Riemannian view of the including higher manifold must imply.

The needed sort of customary connection of Classical art to physical science otherwise, is located in a strict refinement in the properly "warmed up" refinement of the state of the well-placed human singing voices in the modality of Florentine *bel canto* at C=256, as preparation for singing of an exemplary training selection such as Bach's *Jesu, meine Freude* and Mozart's *Ave Verum Corpus*. This training requires focus on the objective of creating, within the willful mind of the chorus, a transcendently "seamless" unity of the perfor-

11. Beethoven's mind thus anticipates Einstein's description of the Kepler-Riemann universe, the universe within which we all actually exist, as finite, but unbounded. That concept is specifically Riemannian.

mance as a whole, a unity of motivating conception from a moment of functional silence at the outset, and also the close.¹² *The mission is completed, when this intention and a reasonable quality of accomplishment have been reached among persons also undergoing a kindred approach to the great discoveries of scientific principle from the standpoint represented from the Pythagoreans and Plato through Kepler, Fermat, Leibniz, Gauss, and Riemann. In that way, the inner sense of the unity of the underlying, transcendental unity of the set of principles of Classical science and those of Classical artistic composition and its performance, becomes something "recognized" by those with appropriate experience of both.*

This required quality of "boundedness" of the performance of any Classical musical composition worth hearing as "completed," is Riemannian in the same sense that our "self-bounded" universe is Riemannian, that in the same

sense identified by Albert Einstein. All true ideas are Riemannian in this same respect. It is this quality of "self-boundedness," which is implicit in Bach's method, is brilliantly and simply clear with Mozart's *Ave Verum Corpus*, and is the impassioned goal which we must recognize, more and more, throughout, as Beethoven progresses toward the concluding, qualitatively higher state of his "late" compositions. It is the ironies created by such more or less perfectly executed *self-boundedness*, a *self-boundedness like that of a universe*: the self-boundedness of a composition, of the performance's characteristic idea, which is the identity of any well-performed good work in Classical musical or other artistic composition. It is this quality of "self-boundedness" which distinguishes any valid form of development of a valid idea, in physical science, or Classical artistic composition and its performance. This is the characteristic form of what is also rightly regarded as a *Platonic Idea*.

Notably, the same principle is defined as to principle of practice in the later string quartets of Haydn, those of Mozart, and the late quartets of Beethoven (most notably). The attempt to produce that kind of unity of effect of counterpoint, that sense of transition, through a momentary breath of "infinity," which serves as a model of the performance objective which is typified in the smaller case, by the Bach motet, or

12. "Seamless" in a higher sense, but based on the non-linearity of a Mozart *Ave Verum Corpus* which is ordered by a series of Lydian intervals! In other words, "seamlessness of a higher order" of physical phase-space. It is the tension so created, which moves the process of development which is the unifying conception of the composition. The same quality of intention which should have controlled the performance of a true Classical drama (and the audience's attention), such as an appropriate selection from Classical Greek tragedy, or modern Shakespeare or Schiller, from the rise of the opening curtain, to the close.

that particular Mozart work.

The naive reading of such musical composition in terms of axiomatic blind faith in what might be assumed to be the self-evident verities of sight and sound (and, perhaps, occasionally, smell), is the popular form of silliness to which Rotstein's review subscribes. Music must be heard, and created, not by the brutish standard of pleasure in the sensations of sight, sound, and smell, but by a higher order of faculty, a peculiarly human faculty, the creative (e.g., *noëtic*) powers of a higher authority than sense-perception: the creative powers of the sovereignly individual human mind.

'Classical' versus 'Romantic'

On these accounts, there are two subsuming blunders of assumption permeating Rotstein's account as a whole.

First, although this fact is of secondary, but nonetheless relevant and essential significance, Rotstein, instead, promotes the quackery which divides the serious musical composition of the Eighteenth and Nineteenth centuries' span, essentially, among allegedly Baroque, Classical, and Romantic "periods." To get us quickly to that issue, Rotstein the Sophist says: "I also don't idealize the idolatry that once enshrined the long 19th century of music (roughly 1785-1915) that forms the heart of the Western art-music tradition."

Contrary to the view expressed by Rotstein, there: Johann Sebastian Bach has several facets, but, essentially, he, who died in 1750, embodies the continuing foundations of all of that Classical method of composition which also underlies the work of the mature Joseph Haydn, Wolfgang Mozart, Ludwig van Beethoven, Franz Schubert, and, most notably: the late Beethoven quartets such as the Opus 130, 131, 132, and the Opus 133-134 *Grosse Fuge*, 135, the late piano sonatas, 106, 109, 110, 111, and the mighty challenges of the Ninth Symphony and the *Missa Solemnis*. Beethoven is the pinnacle for all great musicians who follow him, such as Schumann, Verdi, and Brahms, and, contrary to all silly Nineteenth-Century Romantics, for Beethoven, Bach was the pinnacle to be climbed.

"Classical" and "Romantic" are essentially as much political categories, as they are scientific or artistic ones. Those two opposing currents coexisting as adversaries among composing artists of the period from the opposition of Bach to the foolishness of Rameau, and to the Fux of *Gradus ad Parnasum*, who best typify the opposition to competent Classical principles from the time of the followers of J.S. Bach, through



EIRNS/Stuart Lewis

The LaRouche Youth Movement chorus performs Bach's motet Jesu, meine Freude, November 2006. Rigorous training in the bel canto singing of Bach's works provides a crucial connection to physical science, in the activities of the LYM.

the death of Brahms. The spirit of Rameau, Fux, and worse, has continued to be expressed as typical of the categorical root of the moral corruption spread, in sundry, faddish varieties (including noise for "prepared piano") throughout the Twentieth Century.

The significant, political point to be appended to that view of Classical composition from Bach and Handel, through Brahms, is that when the Twentieth Century, with its two world wars, its Cold War, and its plunge into cultural and general moral decadence, is viewed against the background of the long sweep of European history since about 700 B.C., we must recognize that not only European civilization, but society as a whole, is presently on the brink of a sharp plunge, economically and otherwise, into the immediate threat of a prolonged new dark age, one threatening to be far worse, far more vicious even than that which dominated the latter half of Europe's Fourteenth Century. This, however, is also, otherwise, a presently menacing catastrophe rooted in the kind of modern degeneracy which dominated the preceding, medieval centuries of *ultramontane* tyrannies.

The same, subsuming principle, if to significantly different effect, in Classical musical composition, is expressed differently in modern Classical tragedy, such as that of Shakespeare and Schiller, most notably. Nonetheless, the category "Classical" remains true for both, still, not only meaningful in this domain, but essential.

First of all, a well-composed tragedy defines a relative "universe," which contains all of the development within it. The principle of action within it is *dynamic* in the sense of

“Riemannian,” not “Cartesian,” not “Euclidean.” It represents the physical space-time of developments within it. Such qualities of dynamics, as opposed to the Romanticism of Coleridge et al., are also those of Shakespeare’s English medieval history plays, covering the tragic course of developments within the Norman kingdom through the culmination in the fall of Richard III. Schiller’s tragedies continue that general principle of design.

The Classical actor may be one of heroic accomplishments in his, or her profession; but, there are no actual heroes within a Classical tragedy itself; the merely putative heroes among the characters within the drama, among the other principal characters of the action, express the control exerted upon them by the single tragic principle which defines—*dynamically*—the space within which they operate. Lear, Macbeth, and Hamlet are the same sort of “hopeless cases” on this account. Julius Caesar, the same. Schiller’s Don Carlos and Wallenstein, the same. The quality of tragedy, so defined, is the characteristic of the entirety of the domain which is placed on the stage of the intended audience’s mind, just as in any great composition by Mozart or Beethoven.¹³ There are no actual heroes among the principal figures in tragedies; instead of heroes, there are contrasting, merely supplemental, if artistically necessary figures of the body or the periphery of the play, serving virtually as needed commentators on the action—ghostly voices, whispering, as if unseen, from the shadows; these latter are figures such as the Horatio of *Hamlet*, the Queen in *Don Carlos*, or the pair of children which Schiller creates for *Wallenstein*, or the historical Cicero off stage in *Julius Caesar*.¹⁴ These figures, are as those serving



A scene from Shakespeare’s Julius Caesar. There are no actual heroes in a Classical tragedy. Caesar, like Lear, Macbeth, and Hamlet, is a “hopeless case.” The creative genius who produces such drama, LaRouche writes, “creates a Riemannian space in which the reality of the tragedy is situated, as if it were an axiom of the universal system within which the action is confined....”

13. To speak in the language of Euclidean geometry, the fatal error in the tragic false hero, such as a Prince Hamlet, his kingdom, Caesar’s Romans, and so on, is the subject’s obedience to a false choice of axiomatic physical space-time (e.g., the imagined ghost of vengeful Hamlet’s father), the characteristic dynamic feature of their entire culture, their society. They fail to be revolutionaries against the culture whose own characteristic, quasi-universal features, such as popular opinion, traditions, and so forth, control their choices of behavior, and thus, control them as the will wielding the puppeteer’s strings control the marionette.

14. *Julius Caesar*, Act I, Scene 3:

Cassius: “Did Cicero say anything?”

Casca: “Ay, he spoke Greek.”

Cassius: “To what effect?”

Casca: “Nay, an I tell you that, and I’ll ne’er look you in the face again: but those that understood him smiled at one another, and shook their heads; but, for my own part, it was Greek to me....”

as actual, or implied “commentators” in the ancient Classical stage; which are not themselves in the chain of the causal sequence of the principal pathway of the tragic action, but like ironical spirits to be seen and overheard by the audience.

The true creative genius, whether in physical science, great musical composition and its performance, or Classical drama, especially tragedy, creates a Riemannian space in which the reality of the tragedy is situated, as if it were an axiom of the universal system within which the action is confined; it is not only a place in which the action is situated, but serves as the shadowed, relevant principle of ancient Classical *dynamis* or modern, anti-Cartesian, Leibnizian *dynamics*. This is not a Euclidean stage on which actors might freely prance; it is a space which acts upon all the “moving parts” within it, whether they are conscious of their actual motives, or not, as from above, as in a major composition by Beethoven, a quality in Beethoven’s work which becomes increasingly pronounced in his later years, especially in the late string quartets. The drama as a whole reflects the Leibniz-Riemann, dynamic principle which shapes the effect of the action, and expresses the true form of interaction among the characters on stage.

Hamlet’s soliloquy closing Act II, is a brilliant expression of the relevant application of the principle of *dynamis/dynamics*, in controlling the wills governing the actions and interactions among the characters on stage. The same principle, the

axiomatic quality of moral failure expressed in one mode in that Act II soliloquy,¹⁵ is affirmed in the famous Act III soliloquy.¹⁶ The tragedy is twofold: it is expressed in the form of an *axiomatic* characteristic of the failed society of which they are a part, as the Democratic Party's failure to mobilize to end the tragedy of the United States represented by the succession of the failed Presidential candidacy of Al Gore and the Bush-Cheney Administration: whereby the leading political hegemons of our system have revealed the Hamlet-like moral degeneracy of the reigning "Baby Boomer" culture as such; it is the doom imposed on a society—as in the case of most leading figures in power in the apparently tragically self-doomed U.S.A., under its prevalent culture, top-down, today. It is that tragic impulse for self-inflicted doom, a trait of a decadent phase in European culture, which underlies the impassioned lurches for tragic failure exhibited by the leading pre-Presidential campaigns of the U.S.A., and the even far worse moral quality of performance of the governments of western and central Europe today.

"Och!" as Robbie Burns sang, "to see ourselves," our present leading political forces and their trends, "as others see us." Thus, Schiller emphasized the mission of the Classical playwright to be, to prompt the citizen attending the play, to leave the theater a better citizen than had entered. There are no heroes in true Classical tragedy; there is a ruling dynamic of that society, which is to be abhorred. The same effect is accomplished by Eugene O'Neill in his *The Iceman Cometh*: it's not Hickey himself, but the societal culture in which Hickey lives, the dynamic, which is the tragedy.

Just as the universe is governed by underlying, universal physical principles, so, every society, especially during certain phases in the aspect of its existence which represents the relevant historical process, is governed by principles of action of which the members of the society are usually not efficiently conscious, but which are a hidden force, unknown to them, which controls the way they select both their preferred opinions and their actions. This is *dynamis* in the sense of the term applied to physical science by the Pythagoreans and the circles of Socrates and Plato. This is, similarly, *dynamics*, as the use of the Classical Greek concept of *dynamis* was introduced to modern science by Leibniz, against the foolishness of Euclid and the scientifically wretched Descartes. This is the essence of the great work of Bernhard Riemann. Social processes, like physical processes generally, are ruled by the dy-

namics reigning within the current process as a whole, rather than the sum of the products of interaction of what the foolish individual, even in very high places at the moment, imagines to be his or her "free will." Only the most contemptibly suicidal stages of cultures would deny the existence of conspiracies in history: conspiracies which usually conspire against the witting perpetrators who will become chiefs among the victims of their own folly.

There is, in fact, no existent "free will," except as the power to willfully change the behavior of the society as a whole, at least implicitly, by intent and attempt: the will to break through those habits by which the otherwise prevalent, decadent social process as a whole imposes its will, as if by erected psychological fences, to panic the members of society, like the membership of the U.S. Congress, into a predetermined set of morally sterile, or worse reflexes. The function of great Classical drama, especially the greatest tragedies, is to show the audience the actuality of themselves in action, to present an unfolding picture of the hidden, all-embracing doctrinal assumptions by which the behavior of the audience as a whole is controlled, through the tragic control of the will of the audience's individual member.

Such is the essence of Hamlet's tragic soliloquy in the close of Act II, and the onset of Act III. The case of Hickey in the relevant scene from *The Iceman Cometh*, shows the controlling guilty principle of all the played parts, on and off stage, by Hickey's shocking confession. The behavior of the society is bounded by silent fences which keep the herd in its ultimately fatal course.

The function of great Classical drama is to afford the audiences a therapeutic peek into the interior of their own, or a different society's souls, to prompt a sudden, fearful chill within them, to prompt them to see the need to change themselves, as if axiomatically, by rising to a higher vantage-point in truth, a perch from which to look down upon their society, as if to a stage seen from the balcony of the theater, to see how foolish their entire people have been, and, above all, to provoke them into changing the choice of the dynamic which governs the way in which their own society is lurching, thus far, of its own will, into the now impending, tragic outcome of continuing to act according to what the individual member of the society generally believes.

In that role, Classical drama is that needed expression of the conscience of a people, such as the people of our U.S.A. today, by means of which that people may be induced to abandon its self-inflicted, compulsive, tragic lurch toward disaster, even at today's presently very late date.

So, we must view that behavior of the U.S. population generally, but especially the putative political leaders, the brutish folly of present leaders in permitting the lunacy of the long, tragically wasting, current Iraq war to begin, and to turn debate over that worsening catastrophe into a device for allowing that hopeless folly to continue, up to the point, soon, our nation itself might be destroyed by the continuation of that

15. "The play's the thing...."

16. "...thus, the native hue of resolution
Is sicklied o'er with the pale cast of thought
And enterprises of great pith and merit
With this regard, their currents turn awry
And lose the name of action...."

The play is over; death stalks the coward's will. How like the current existentialist folly of President George W. "Belshazzar" Bush's appointment for the U.S. forces in Samara.

lunatics' folly by our anointed political leaders, and kindred fools.

Here, in such tragic examples, lies the function of creativity in art. To see the Solar System which shapes the characteristics of life on our Earth, and to see the galaxy which contains and shapes the destiny of our Solar System, and so on. To cease being like rhesus monkeys doing what they do, while screeching, and stinking, like "rock stars," in their present ideological cages.

The point is to recognize the geometry of the virtual mental cage within which the popular mind is confined, and to burst that mind free of that cage, that it might rise to the higher truth of matters which must shape man's future existence, truth which shall become the keys to discovering the true destiny of our souls. In all this, let Euclid remain, as justly damned!

Euclidean geometry is such a tragic folly, a tragic principle, which, shaping the mind of its true believer, cripples a society of such believers, to tragic effect, for the society as a whole.

2. What Is Creativity ... and Dynamics?

If you were to wish to know both where and when, in the universe, you are on our planet, today, ask Johannes Kepler, or those certain very ancient, transoceanic mariners, from whose work the legacy known to the Greeks as Sphaerics was derived.

The actual creativity from which the principle of Classical composition springs, is a quality of activity which exists in no living creature other than human beings. The corollary is, that any form of behavior which can be imitated by an animal, is *not* an expression of *human* creativity. The most interesting, modern proof of this fact was provided, variously either explicitly, or implicitly, by Academician V.I. Vernadsky's discovery of the principle of what he named as the *Noösphere*.

I explain.

Those relevant great discoveries presented by Vernadsky, during the last decade of his life's work,¹⁷ apportion the known universe, principally, among three interactive, but distinct phase-spaces: a.) the universe of ordinary physical chemistry; b.) *The Biosphere*: the physical phase-space of both living processes, and also materials produced specifically by the action of living processes; and, c.) *The Noösphere*: expressions of the creative powers specific to the human form of life.

Our planet Earth is composed of three, corresponding

classes of products, classes which are characteristically products of one or more of these three distinct classes of phase-spatial processes. In the known "history" of our planet, the composition of Earth has been changing, such that the percentile of the Earth mass attributable to living processes (i.e., the Biosphere) has been increasing, and the percentile of the mass attributable to the Noösphere has been increasing relative to the absolute and per-capita masses of the Biosphere.

Thus, conversely, we can define human creativity as the form of action which, among whatever its other products might be, is expressed by actions which increase the ratio of the Noösphere's mass relative to the Biosphere.

This set of distinctions of the function of the Noösphere, is the attributable cause of the bulk-effect of the combined absolute, per-square-kilometer, and per-capita increase of the Noösphere, relative to both the Biosphere and the planet as a whole.

Nonetheless, despite the experimental evidence, many people, even many who, for some curious reason, are called "scientists," cling still to a piece of gibberish called "the Second Law of Thermodynamics." Despite that curious reasoning, the evidence is that the Sun produced (quite lawfully) the planets and the new varieties of atomic elements associated with the thermonuclear-fusional generation of the Mendeleev table of the planetary system. That so-called "Second Law" is the common enemy of human creativity in the taught science of today's modern society.

The truth is, our Sun is, dynamically, part of a galaxy, whose internal functions are, in turn, part of the processes dynamically pervading a system of galaxies. Meanwhile, on Earth itself, there has been an evolved, upward development of new types of living species, a development traceable to upward-evolutionary developments from pre-biotic to higher living forms. On top of it all, as the case of so-called "cosmic rays" show, there is nothing which happens on Earth, or the relevant nests of galaxies, which is not strongly, even decisively affected by lawful interactions whose effects on Earthly affairs are rooted in, not only the functions occurring within the Sun, but also, as typified by cosmic-ray effects, within this and more distant galaxies, too.

This brings us to the matter of a great, pervasive fraud of the recent two centuries of history.

Why, therefore, would anyone who considered himself or herself a scientist, have ever accepted the obvious form of *apriori* dogma which underlies the concoction known as the so-called "Second Law of Thermodynamics"? The answer is found in the meaning of a technical term, "reductionism."¹⁸

18. That so-called "Second Law" was a concoction which reflects two principal, apriorist presumptions. The first of these, underscored in the preceding chapter of this report, are the *apriori* assumptions of *Euclid's Elements*. The second is the principal assumption of the Cartesian, and Anglo-Dutch Liberal empiricist followers of Paolo Sarpi. The form of the Anglo-Dutch Lib-

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

Contrary to that “Second Law,” the real universe of thermodynamics is Riemannian. A direct collision between competent physics and the circles of Clausius, Grassmann, Heinrich Weber, et al., erupted around the 1858 publication of Riemann’s “*Ein Beitrag zur Elektrodynamik*” by Prussia’s Royal Society.¹⁹ The empiricists and their followers of the Cartesian school of de Moivre, D’Alembert, Voltaire, Euler, Lagrange, Laplace, Cauchy, et al., were each and all committed to denying the physically efficient presence of a principle of creativity in nature. Once the matter is situated within the dynamics of Leibniz, Riemann, et al., the fraudulent character of the fabled “law of entropy” is clearly exposed.

The point to be emphasized here, is that every known state of existence in our universe is subsumed under a principle of universal creativity. The universe is a process of continuing creation. The Solar System is part of such a process of creation. Life is an expression of a creative principle. The human mind is a higher order of quality of creative process than the preceding two.



Johannes Kepler's discovery of the principle of the organization of the planetary orbits, and of the harmonic characteristics of the Solar System, served as the foundation of all competent modern physical science.

eral, empiricist system, is essentially Cartesian. That means an aprioristically Euclidean notion of space, time, and matter as respectively, ontologically distinct categories. It means, in the form which empiricism assumed during the course of the Eighteenth and Nineteenth centuries, not only a mechanistic method, but also a reliance on reductionist statistical assumptions. The “Second Law of Thermodynamics” was derived as a fraudulent treatment of the work on heat by the Ecole Polytechnique’s Sadi Carnot, in which Clausius, Grassmann, et al., presumed that physical space-time was intrinsically Cartesian, as opposed to the dynamic conception supplied to science by the ancient Pythagoreans and circles of Plato, and the founders of competent forms of modern European science such as Nicholas of Cusa, Luca Pacioli, Johannes Kepler, and Gottfried Leibniz. In the language of modern “positivist” dogma, the Second Law of Thermodynamics is an “hereditary” consequence of a radically false interpretation of the evidence according to arbitrary belief in a neo-Cartesian presumption respecting the nature of space, time, and matter.

19. C.f. *Riemann's Gesammelte Mathematische Werke*, H. Weber, ed., pp. 288-293. This Riemann paper was a reflection of original work, in association with Gauss’s associate Wilhelm Weber, proving the error of the official British line on electrodynamics. This demonstration has become a standard of competence over time. The attack on Riemann’s work was attributed, by Heinrich Weber, to Clausius. Other sources locate the origin of this attack on Riemann as the mathematician Grassmann.

Universal Laws

The most significant class of mankind’s creative discoveries, is named *Universal Physical Laws*. It should be recalled at this moment, that the subject of this report as a whole, is the fact of the existence of a form of universal physical laws called *Principles of Classical Artistic Composition*. The latter are Universal Physical Laws, but, as we are to have explained here, of a special class.

The mention of this subject of Universal Physical Laws, compels us to pay attention to a widespread incompetence in the way people ordinarily define the use of the word “truth.” The popular error is to suggest that a statement is true, or is not true. On the contrary, there are two aspects to an actually true statement: a.) The idea to which the words refer is true; or, b.) The assumption, that the words expressed are true, in and of themselves. To make the relevant point, consider the following illustration.

She says: “Yes, that is John!”

Is she telling the truth? Yes, and also no. The person is not John, but he is the actual person she had mistakenly believed, earlier, to be named “John.”

He says, “That is my opinion!”

He is right in saying that that is his opinion, but his opinion is absurd.

A variant on the later case, is: “I am sincere in what I say, and I have a right to my opinion: so you are wrong.”

He is wrong in his opinion, and, if he is honest, he must apologize for spreading false statements. If he insists on his opinion, he is being an immoral person. If he defends it as an allegedly “honest opinion,” he is to be condemned as a liar. If he argues, “I have a right to my sincere opinion,” when the opinion itself is factually false, then he is an immoral person, probably worse, a Sophist. He is the kind of liar who proceeds by insisting on strong assertions *out of reckless disregard for truth*.

People do not have a moral right to wrong opinions. They have no right to proceed in flagrant disregard for available truth; they have no right to speak falsely out of malice. I have the experience with lying prosecutors, wildly corrupt Federal judges, defense attorneys, and perjured witnesses to know this very well. However, I bring this matter up here only for reason

of its bearing on the subject of the body of this report as a whole.

Such are very simple sorts of illustrations of the point to which I turn your attention now.

The simplest modern example of the problems which I have just illustrated with those examples, is the case of that system of lying called variously empiricism, or Philosophical Liberalism. The classic case of that form of lying is typified by substituting a mathematical formula for the idea of a law of nature. This was the great issue which Carl F. Gauss attacked, in his doctoral dissertation's attacks on what were, in fact, the frauds of D'Alembert, Euler, Lagrange, et al. The targets of this attack by Gauss were empiricists who, accordingly, resorted to the form of nominalism in which they substituted misleading mathematical formulas for actual physical principles.

The story behind that case is, summarily, as follows.

The ancient Pythagoreans, who were the crucial founders of a valid stream of European science, based much of their science on an Egyptian form of astrophysical science, called "*Sphaerics*." In that *Sphaerics*, none of the rubbish associated, later, with Euclidean *a priori* definitions, axioms, and postulates, was tolerated. To derive a line, required a relevant physical action on a point; to derive a surface, a physical action on a line were required. The pivotal concept of Pythagorean geometry, was the physical action needed to generate a doubling of the cube solely by the acts of construction, a solution famously solved by Plato's Pythagorean friend, Archytas.

Later, come Europe's Sixteenth Century, a group of Italian mathematicians, including Girolamo Cardano, attacked these matters, of cubic and biquadratic equations, from an algebraic standpoint. These Sixteenth-Century issues of cubic and biquadratic algebraic roots were addressed later, during the course of the Eighteenth Century, by a set of fervent haters of Gottfried Leibniz, including Abraham de Moivre, D'Alembert, Euler, and Lagrange. *Credit was given to D'Alembert's accomplice de Moivre, for suggesting that the curious, infinitesimal values implied, algebraically, as part of algebraic solutions for cubic and biquadratic roots, were to be considered merely "imaginary."* *This fraudulent attack on the Leibniz calculus and the Leibniz-Bernouilli, catenary-cued, universal principle of physical least action, was rebutted by Carl F. Gauss in Gauss's 1799 doctoral dissertation, the first of a series of Gauss's writings on the subject of The Fundamental Theorem of Algebra.*

It is precisely those "infinitesimal" qualities, which Euler, Lagrange, Laplace, Cauchy, et al. name, fraudulently, "imaginary," which are the essence of reference for competent thinking about the mathematics of physical science. Here, as in Kepler's uniquely original discovery of the fundamental principles of modern physical science, we encounter the expression of actually existent universal physical principles. Here—precisely here—the truth of physical science, is to be found.

Thus, the essential fraud which Euler et al. committed in that way, was the crime against truth called nominalism: the substitution of a mere description for the crucial experimental event which defined the fruit of a relevant form of experiment.

In each of the crucial cases of empiricist crimes of that same type, the criminals denied the existence of what was termed "the infinitesimal." This same lie was repeated by Laplace and in the principal work of Cauchy on the calculus and otherwise. What each of those empiricist and positivist criminals was doing, was denying the existence of efficient universal physical principles.

This was also the same type of lying which pervaded *Euclid's Elements*. The form of the lying in all similar cases, is the substitution of the name of a sense-perception, or a mere formulation, where the truth lies in an actually existent physical event, or set of such events.

Truth in Science

There are, chiefly, two, paradigmatic discoveries at the foundations of the work of the follower of Cardinal Nicholas of Cusa, Johannes Kepler, in the founding of the method underlying all competent modern physical science. The first, is the discovery of the principle of organization of the Earth orbit, with respect to the Sun and Mars. The second was the discovery of that harmonic organization of the Solar System which defined a fair estimate of the nature and measure of universal gravitation within the Solar System. This combination of discoveries, chiefly by Kepler, served as the foundation, as recognized by Albert Einstein, underlying all competent modern physical science, from Kepler, Fermat, and Leibniz, through Bernhard Riemann.

That set of combined ancient and modern discoveries, defines all competent modern physical science, and, also, decent artistic composition.

To say that all competent modern physical science is necessarily Riemannian, is not to belittle his predecessors. What Riemann wrote, in his revolutionary 1854 habilitation dissertation, is the essence of competent physical science today, but it does not discredit such Riemann predecessors as Kepler, Fermat, Leibniz, or Gauss. Under the "witch-hunt" setting of his work in science, from 1799 through to the end of his life, Carl F. Gauss was often as scrupulously deceptive as a target of a reductionists' Liberals' Inquisition might be permitted to be. The evidence of most, at least, of what Gauss really thought during his life in the Nineteenth Century, can be found by the diligent in a search of Gauss's own extant, related papers and correspondence through to the end of his life. Despite the fraudulent preface to a modern edition of Gauss's teacher Abraham Kästner's history of science, Gauss was a follower of Kästner, and those professionals who have deprecated Kästner were Leibniz-hating degenerates in the school of the followers of Lagrange, Laplace, Cauchy, et al. Einstein was right: modern science is a

process which emerges with the definition of modern science by the work of Kepler, and is brought to a fairly rounded-out form, where it lies, essentially today, as presented by the work of Riemann.

On this account: the most crucial accomplishment by Bernhard Riemann is his courage in defining the entirety of the Euclidean and related traditions as a fraud upon science. This statement by Riemann obliges him, and all competent thinkers in science after him, to discard any and all semblances of an aprioristic geometry of a Euclidean, or related reductionist type. Riemann thus obliges himself, and those who would follow him, to permit no axiomatic-like assumptions in science which are not crucially-experimentally proven concepts corresponding to universal physical principles. Kepler's discoveries, regarded as echoes of the ancient work of the Pythagoreans and other circles of Plato, are to be regarded as the foundation on which all competent fundamentals of modern science are premised.

The crucial feature of Kepler's contribution to this, is located in Kepler's use of the transcendental sense-organ to which I referred in the opening of the first chapter of this present report: the organ of sense which is neither sight, nor sound alone, but partakes of the ironical juxtaposition of both into the form of a single, transcendental quality of sense-perception.

The crucial feature of that correction in our view of truth in sense-perception, is that man views the social process governing man's action upon the universe as itself a subject of this higher, transcendental supersession of sense-perception. Science, thus, supersedes sense-certainty.

In this way, "science" is made, as it should be, into a view of social man as the subject under which man's development and use of so-called physical science must proceed. By acknowledging the role of harmonics in defining gravitation within the Solar System, we adopt the standpoint of a human science, the science of man's power, and related obligations, for man's actions within the universe.

This brings us back to man and woman as defined in *Genesis* 1: man and woman in the likeness of the Creator, and with the assigned obligations which that implies. Science becomes, then, a matter of the knowledge of what we must do within the universe, that for the benefit of the future condition of the universe in which the special role of man and woman is situated in immortality with respect to generations yet to appear. The capital sin of sense-certainty is banned, and the pagan's false gods, such as those of *Euclid's Elements*, are banned, and, thereby, destroyed.

The power which mankind represents, uniquely, among all existing living species, is the power of discovery of universal physical principles, as such principles are defined as subjects of the faculty which is neither sight nor sound.

Principles of that qualification enclose a finite, but unbounded universe, an efficient universe. Since these principles define the dimensions of that universe's self-bounding, they appear to experimental inquiries as infinite, and are

therefore expressed in particular as infinitesimal.

On this account, the most important, most fundamental aspect of competent physical science is that activity in which science is expressed as the ironies which occupy, unseen, the true meaning of Classical poetry, or poetry as in the form of the methods of J.S. Bach, or other masters of the poetic transcendental. Thus, science which is not Classical poetry is neither poetry nor music, nor science.

The moral obligation which these considerations bestow upon society, are expressed in the qualities of Classical artistic composition, as this is exemplified by the combined work of J.S. Bach and such of the collaborators in his cause as Mozart, Beethoven, Schubert, and the great Classical poet and playwright, Friedrich Schiller.

Rotstein should seek to refresh his membership in the human race.

END NOTE

Note the functional similarity of my methods of investigation in that case from management consulting days, with the methods of Edgar Allan Poe. Poe, who inherited his claim to membership in the Society of the Cincinnati, performed U.S.A. military service as a sergeant, and left West Point Academy during the course of his first year, as a consequence of his life-long affliction with epilepsy. He entered service as a New York journalist, where he cracked a murder case with celebrated methods, and continued as a counterintelligence agent against British subversion of the U.S.A. He died as a casualty of that continuing mission. As a member of the Cincinnati, under the surviving head of the institution, the Marquis de Lafayette, Poe did significant service in Paris in association with fellow Cincinnatus spy, James Fenimore Cooper. I was attracted to that tradition's dedications and methods by my own lowly military service, notably in an India struggling for that independence which we followers of President Franklin Roosevelt were determined that they should have. Such has been my passion since, during, and immediately following World War II, and I have continued that informal service to what I recognize as my republic's interests whenever conscience mustered me to so.

While I have done a kindred quasi-official service to my nation's interests at some times past, I was never a member of any intelligence service, but only a patriot, and that, on reflection, in the spirit of the Cincinnatus legacy. The very choice of the name of Society of the Cincinnati, is a matter of relevance to the methods and devotion expressed by the present report. It were sufficient to read Chapter XXV, Book III of Machiavelli's *Discourses on the First Ten Books of Livy*, to recognize the aptness of the selection of the name of the Society of the Cincinnati by the veteran officers of our revolutionary war. It is crucial, that the intention and the method expressed, as Poe's "detective stories," reflecting his mastery of the creative principle, are congruent; they bear on the same method which I have presented in this writing. There is service to one's republic, but, then, service to the republic serves a higher calling, service to the mission for which this republic was created on behalf of future humanity as a whole. Compare the form of argument with which Machiavelli opens his *Discourses* with the argument with which James Fenimore Cooper opens with his own Introduction to his 1839 *The History of the Navy of the United States of America*.