

# More 'Nobel lies'

*Lyndon H. LaRouche, Jr. reviews "Pragmatic Gradualism: Reform Strategy for Russia," the proceedings of an Economic Transition Group seminar.*

East Germany has been somewhat of a success, but it has taken huge government investment over four years. It was the largest transfer ever executed. That kind of rebuilding isn't available for the Russian economy.

—Professor Lawrence R. Klein, at New York University, March 17, 1995<sup>1</sup>

As usual, Nobel laureate Lawrence Klein is wrong.<sup>2</sup>

Like the other post-1989 developments in what had been the Comecon sector of the world economy, the economic history of the area of the former German Democratic Republic (G.D.R.), stands today as a monumental failure. Had not the agricultural potential of that region, also, been extensively destroyed during the past six years, in addition to the industrial sectors, the resulting destruction of east Germany would have been a perfect imitation of that postwar "Morgenthau Plan," the which had been designed to reduce the entirety of post-World War II Germany to a de-industrialized state of bucolic docility. The "reform" which the Thatcherites and George Bush imposed upon Russia, like the Morgenthau Plan before it, was designed with the intent to destroy, not to rebuild.

Throughout the former Comecon sector, the results of the post-1989 reform match that same design, that same malicious intention.<sup>3</sup> Throughout that region, cruel travesty in the

name of "free market economy," has provoked, among Russians and others, that sense of betrayal which led to the return to power of Communist parties, in election after election, in most among the countries of post-communist eastern Europe. The apparent exceptions to this pattern, such as eastern Germany and Russia, are dwindling in number, as is illustrated by the recent show of strength by the PDS in Germany, and the Communist Party in Russia.

Unlike Professor Klein, most of the economists who have considered the relevant, 1990-1996 results in Russia, are willing to concede, that the so-called "market economy" reform has been a calamity. Virtually the same results, from the same species of "market economy" medicine, are seen in every other country in eastern Europe and the territory of the former Soviet Union. Even most among those leading economists who argue for continuing the radical "free market" reforms, do not deny the calamitous results produced during 1989-1996, nor have they denied that the reform produced such catastrophes. Their defense of the reform, is to the effect of the International Monetary Fund's saying to the Russians, and other victims of its policy, that, to reach Paradise, it is necessary, first, to die: *that it has been necessary to kill and burn the Phoenix-economies of eastern Europe, so that that region might be reborn from its ashes, as a "true market economy."*

The Russian participants in 1995 discussions of the Economic Transition Group, point to this pattern in the former Soviet territory. Some among their U.S.A. interlocutors acknowledge the existence of the phenomenon. The reality is summed-up fairly, in the Preface of the July 1995, English-language edition of the proceedings: *Pragmatic Gradualism: Reform Strategy for Russia*. That Preface, by Valery Makarov of the Central Mathematical-Economics Institute of Russia's Academy of Science, begins:

On January 2, 1992, Russia embraced "shock therapy." Since then, the basic strategy for economic reform has been to get the government out of the economy as quickly and completely as possible. Strongly advocated

the possibility of a recovery of either eastern, or western continental Europe, has been virtually eliminated today—unless the United States were to intervene forcefully to reverse this policy of induced economic collapse.

1. *Pragmatic Gradualism: Reform Strategy for Russia* (Moscow: Economic Transition Group, August 1995) (73 pp), p. 59.

2. The record of Klein, and his Wharton School cronies, in Mexico, since 1982, would be more than sufficient evidence of the pervasive incompetence of his econometric methods.

3. Although this policy of the Thatcher-Mitterrand, Anglo-French *Entente Cordiale* was operational earlier, in such forms as the design for what became the "Maastricht" agreements, the British policy for destroying the nations of the former Comecon was more vividly publicized, during the autumn of 1989, by Conor Cruise O'Brien and Thatcher Minister Nicholas Ridley. The *Entente Cordiale* partners of 1989 expressed their determination, not only to prevent Germany from being reunified, but, above all, to prevent Germany from entering into those forms of large-scale economic cooperation with the formerly Communist states, by means of which the kind of policy proposed, in 1989, by Deutsche Bank's Alfred Herrhausen, might be implemented. For purposes of rhetoric, Mrs. Thatcher's regime, in concert with Slobodan Milosevic's Serbia and Israel's extreme right-wingers, referred to its efforts to sabotage economic recovery in both the Balkan, and former Comecon states, perversely, as an effort to prevent Germany from becoming a *Fourth Reich*. Under the so-called "reform" imposed upon Poland, and then Russia, by the combination of British Thatcherites, Mitterrand, and George Bush,

by the West but never popular in Russia, this attempt at sudden *laissez-faire* has led to collapsing production and widespread poverty. In the eyes of a distressed and disillusioned populace, crime and corruption are the hallmarks of the transformation. Promising the restoration of law-and-order and economic strength, nationalist extremism is gaining momentum. Although most remain committed to democracy, recently achieved civil rights, already eroded, may not endure.<sup>4</sup>

From among the U.S.A. participants in that dialogue, the frankest acknowledgment of that reality, if with some degree of understatement, was supplied by Lance Taylor:<sup>5</sup>

Dismantling the planning system was beyond the scope of the theory underlying big bang or global shock reform packages of the early 1990s. As a result, the macroeconomic adjustment mechanisms put into place did not fit the situation at hand and worsened the output losses and inflations that were in any case structurally inevitable during the transition. Restoring macroeconomic balance will not be easy, but it can be done. . . . As society's superordinate actor, the state will have to play a central role. The state surely can fail in several dimensions. It can try to do too much, thereby achieving little. It can become purely predatory, as in countless petty dictatorships. Nonetheless, successful reform will require a degree of state intervention that most reformers neither contemplate nor comprehend.<sup>6</sup>

That is fair comment. There are important errors in Taylor's contribution, but none of the malicious tendentiousness typical of apologists for Jeffrey Sachs or the IMF mafia.

Many criticisms, of several distinct varieties, could be made of the sundry contributions to this July 1995 publication of the Economic Transition Group. Most such criticisms, however legitimate each might be for consideration under different circumstances, should be put aside here. In addressing *Pragmatic Gradualism's* content, the reviewer must address the proposition, "How well does the collection of contributions, taken in its aggregated entirety, serve the purpose to which the publisher had assembled these participants in the discussion of Russia's future reform policy?"

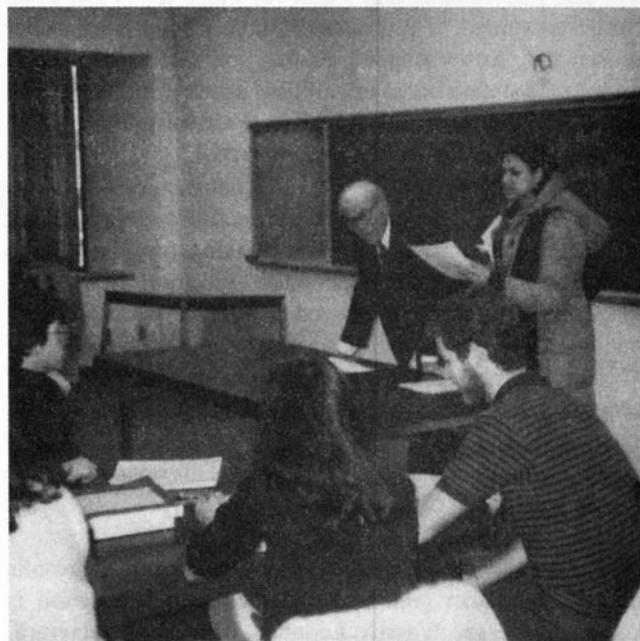
With that question in view, consider a relevant observation, which arises in the otherwise misconceived contribution by Nobel laureate Kenneth Arrow, presently one of the world's senior Malthusians:<sup>7</sup>

4. op. cit., p. ii.

5. New School for Social Research, New York, N.Y.

6. op. cit., p. 56.

7. On 1972 Nobel laureate Arrow as a Malthusian, see Lyndon H. LaRouche, Jr., "Kenneth Arrow Runs Out of Ideas, But Not Words," *21st Century Science & Technology*, Fall 1995. That report was prompted by Kenneth



*LaRouche Democrat Susan Bowen, during her 1984 campaign for Congress in Pennsylvania, walked into the classroom of Nobel Prize economist Lawrence Klein at the Wharton School in Philadelphia, and indicted him for crimes against humanity, for promoting malthusian policies in Philadelphia as well as the Third World.*

. . . No doubt many factors operate, but the one which I want to stress, the role of time, is intimately linked with a deeper understanding of the price system and markets. There is a future as well as a present in economic life. . . . What I mean by the role of time can be stated paradoxically: the future influences the present. This seems like a violation of our ordinary laws of causality, but what is really meant is that our expectations of the future will affect what we do in the present.<sup>8</sup>

That far, a point of crucial importance for Russia's economic recovery today; but, then, Arrow's mind appears to wander off, from the sublime of Plato's and Ramon Llull's treatment of this principle of science, into the banal.<sup>9</sup>

We must award Arrow the qualified compliment, that that passage represents perhaps the best a veteran operations researcher and Malthusian could do, in attempting to take up Plato's original conception, of the action of future upon present. Arrow thus posed, if only in passing, that issue of method, which is crucial for identifying the total bankruptcy of virtu-

Arrow, et al., "Economic Growth, Carrying Capacity, and the Environment," *Science*, April 28, 1995, pp. 520-521.

8. op. cit., p. 42.

9. For a treatment of this principle of economics, compare Lyndon H. LaRouche, Jr., "How Hobbes' Mathematics Misshaped Modern History," *Fidelio* Spring 1996.

ally every doctrine of economics for which the Nobel Prize has been awarded.<sup>10</sup> Unfortunately, there, just outside the door of Paradise, Arrow stopped. At that point, he lingered for a moment, and then retreated, all as if absent-mindedly, back through Purgatory, to the Hades where virtually all the Nobel Prize economics laureates appear to repose.

Arrow, like most among the U.S. contributors to the same proceedings, may have made some useful observations, but he has failed to contribute anything pointing toward a solution for the problem which the Economic Transition Group seeks to solve. Consider the referenced point from Arrow's contribution, from that standpoint.

The core of Arrow's passing argument, on the notion of economic time, outlives the remainder of his paper:

... the future influences the present; This seems like a violation of our ordinary laws of causality, ...

Let us combine the implications of that point with the results for which another contributor to the same publication is known, Professor Wassily Leontief, formerly of Harvard, now based at New York University, where he, Russian Coordinator V. Makarov, and others, met on March 17, 1995.<sup>11</sup>

10. To be specific, excepting the work of France's Maurice Allais.

11. Makarov, op. cit., pp. 57-64.



## LaRouche Campaign Is On the Internet!

Lyndon LaRouche's Democratic presidential primary campaign has established a World Wide Web site on the Internet. The "home page" brings you recent policy statements by the candidate as well as a brief biographical resumé.

**TO REACH** the LaRouche page on the Internet:

<http://www.clark.net/larouche/welcome.html>

**TO REACH** the campaign by electronic mail:

[larouche@clark.net](mailto:larouche@clark.net)

Paid for by Committee to Reverse the Accelerating Global Economic and Strategic Crisis: A LaRouche Exploratory Committee.

Let us consider the most crucial shortcoming of Leontief's achievements, in the light of the point which Arrow fails to develop. There lies the key to understanding the failures inhering in most current opinion on the best way to reform an already worse than intolerable reform.

### Why Nobel laureates flunk economics

Many contributing, underlying presumptions, have prompted the apocalyptic failure of all among the past quarter-century's sundry proposals for "liberal market reforms," in all parts of the world, as in the former Comecon sector. In the cases of the IMF, the British monarchy, France's President Mitterrand, or the Bush administration, for example, the motive for the disastrous proposals imposed so forcefully upon the momentarily defenseless former Comecon sector, is nothing but willful malice. In the case of Professor Jeffrey Sachs, for example, although the motives of those who deployed Sachs were evil ones, it is conceivable that Sachs himself knew no better; Sachs's public utterances suggest a man who proceeded, personally, under the governance of a well-known type of sophomoric innocence, the which is notorious among a pompously adolescent variety of western academic.

Put aside both the willfully malicious reformers, and sophomores such as Sachs. Limit our attention to the instances in which the proponent acted both in good faith, and according to a generally accepted professional standard, whether that standard were competent, or not. Limit our attention, here, to the principal source of the disastrous outcome common to the proposals of all of these economists: the devastating systemic fallacies in the underlying assumptions of today's generally accepted academic instruction in economics.

The crucial point at issue here, is that on which all widely accepted economics doctrines tend to collapse into anti-scientific, utopian fantasies: *What is the source of those two, interdependent magnitudes, which we term, in the one case, the net physical-economic growth of an entire society, and, in the other case, the same society's "macroeconomic" profit?* There is no *rational* answer for this question within the framework of Adam Smith and his successors, Karl Marx included. In the Soviet system of practice, in contrast to both Smith and Marx, the generation of growth was located, as Arrow implies, in what is fairly identified as "the planning function."<sup>12</sup>

Put most simply: If one blundered into the false assumption, that human existence were not distinguished functionally from the existence of the beasts (by man's capacity for generating net physical-economic growth through technological and analogous advances), it would be most difficult to demonstrate empirically a crucially significant, axiomatic difference in ecology, between Lord Solly Zuckerman's society

12. Since the answer to this question is the solution which I discovered approximately forty-five years ago, I must repeat here points which I have made frequently, both in other published professional locations, and as the central theme of my campaign for the 1996 U.S. Presidential nomination.

of baboons, and one of human beings. All modern “Malthusian” dogma, since Giovanni Botero,<sup>13</sup> is premised implicitly upon that axiomatic folly.

Once we shift the measurement of “profit,” from the notion of the aggregated, individual, nominal profits of a society’s firms, to measurement of the net physical-economic growth of the society considered as an indivisible whole, it becomes clear, as we shall show below, that the notion of “profit” among Adam Smith and his followers, has no correspondence to the distinctive realities of human existence, no correspondence to the decisive issues of any form of national political-economy, “planned economy” or other. That is the point on which the relevant Nobel laureates abandon economics, for the irrationalist, ideological utopianism of those who designed the IMF’s reforms for Russia. The common trait of such fellows, is that they identify the source of net growth, to be the imputed sympathetic-magical potency of some empty shibboleth, some witch’s remedy, such as the “free trade” dogma of the devilish Mont Pelerin Society’s “saint,” Bernard de Mandeville.<sup>14</sup>

This provides the setting in which to bring Arrow’s reference to “economic time” into focus.

If definition of “profit” is the net physical-economic growth of an entire society, how shall the portion of this growth, attributable as the estimated profit of the individual enterprise, be derived from the net growth of society as a whole? Similarly, how shall we measure, in functional terms, the relative contribution, of the activity of the individual person in society, to the rate of growth of the society as a functional unit? Conversely, if we employ that definition of “macroeconomic profit,” by what means might some portion of the individual enterprise’s output be adjudged “profit”: How do we know, that what that firm might claim to be its profit, corresponds to the net physical-economic growth of the entire society? On this point, the Nobel Prize for economics, itself, is intellectually bankrupt.

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13. See, the appendix (*Delle cause della grandezza e magnificenza della città*), in his 1588 *Della ragion di stato* (English edition, 1606). Botero is an early forerunner of that Venetian monk, Giammaria Ortes, the English translation of whose 1790 book, *Riflessioni sulla popolazione delle nazioni*, was plagiarized for Thomas Malthus’ 1798 *On Population*. All present-day dogmas of ecology, including that of Arrow et al., are implicitly derived, proximately, from the work of Ortes, and of Ortes’ and Leonhard Euler’s Berlin accomplice, the hoaxster Pierre-Louis Maupertuis.

14. The British propaganda arm known as the Mont Pelerin Society, was formed, at the close of World War II, by the faction of the anti-Roosevelt Winston Churchill. It was set up to promote the dogma of the early Eighteenth Century Anglo-Dutch radical, and pro-satanist, Bernard de Mandeville. That Society is represented today, even after his death, by the notorious radical-conservative, and Mandeville devotee, Friedrich von Hayek. Most of the organizations associated with today’s “neo-conservatives,” as typified by today’s Heritage Foundation, are offshoots of British penetration of the United States’ political parties and economics departments of universities, by the Mont Pelerin Society. On Mandeville and the pro-satanist roots of British Eighteenth-Century “moral philosophy,” see historian H. Graham Lowry, “The Mandeville Model,” *Fidelio* Spring 1996.

Focussing upon this point, brings Arrow’s referenced point, on the impact of future upon present, into better focus.

The available empirical record is, that the ability of mankind to rise above the planetary population potential of any higher ape (about three millions living individuals)<sup>15</sup> depends upon those kinds of increases in the *physical* productive powers of an imputable total labor-force, which improve potential population-density (per square kilometer), while also improving life-expectancies, and other demographic characteristics of the increased total population. During the course of the recent 2,600 years of the rise of European civilization, we have greatly increased the precision of our empirical insight into those principles which give the human species qualitative superiority over all other living creatures, on this account.

That relevant, characteristic distinction of the human mind, is the developable potential ability of the individual person, to generate, impart, and receive,<sup>16</sup> a certain type of conception of natural principles, a type of conception which can not be prompted by mere sense-perception, nor by the formalities of pre-existing vocabulary and literal significance of terms in use within in the relevant language.<sup>17</sup> The valida-

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15. This estimate of approximately three millions individuals is related to the ecological conditions of the recent two millions years.

16. Cf. P.B. Shelley, “In Defence of Poetry” (1821), *passim*. Shelley’s reference to the power “to impart and receive the most profound and impassioned conceptions respecting man and nature,” is a quality attributed, in that location, to poetical and related communications. However, there is no difference in the faculty of individual mental potential, by means of which the characteristic of great poetry (e.g., true metaphor) is generated and recognized, and the power of original discovery of valid principle in physical science. We owe to the influence of both Hobbes’ empiricism, and the neo-Aristotelean empiricism of the notorious Immanuel Kant, the Romantics and their bastard offspring, the existentialists, the false presumption, that no rational comprehension of art and artistic taste were possible. (E.g., Savigny’s fraudulent, but influential, hermetic separation of his irrationalist’s domain of *Geisteswissenschaft* and *Volksgeist*, from the realm of *Naturwissenschaft*.) Creativity in physical science, as Leibniz’s *Monadology* or Riemann’s 1854 habilitation dissertation, defines creativity, occurs by the same faculty of subjunctive reasoning through which the principle of metaphor is generated and recognized in Classical strophic poetry, or Classical (anti-Romantic) musical compositions such as those exemplary works of motivic thorough-composition by Mozart, Beethoven, Schubert, and Brahms from the 1782-1896 interval.

17. This identifies the principled difference between *Wissen* and *Kennen* in strict German Classical philosophy. *Knowing* pertains to the class of conceptions otherwise identified as *Platonic ideas*, such as those principles of physical space-time which are proven to be efficient, but which can not be simply adduced from mere sense-perception of some individual object. *To know* should be employed by our readers, to signify that the person who knows, has either conducted the mental act of original discovery of a validated principle of science (or Classical art), or has reenacted the mental act performed by the original discoverer. This quality of knowing is to be distinguished absolutely from mere learning, mere sense-experience. On the definition of *Platonic ideas*: This notion is presented, first, in Plato’s dialogues, to identify the notions of “love of truth,” “love of justice” (as in the *Republic*). The subject of John Keats’s *Ode on a Grecian Urn*, is Plato’s principle, that beauty is the quality uniquely peculiar to experience of truth. The same conception is elaborated, in Plato’s later dialogues, as the quality of those ideas which represent valid, axiomatically revolutionary discoveries of principle, such as universal physical principles.

tion of such a discovery of natural principle, in physical science or in Classical forms of art, has, therefore, the effect of changing one or more of the axioms and postulates within a physical space-time expressed in the terms of a formal geometry.<sup>18</sup> It is the addition of new, valid, axiomatically revolutionary discoveries in science, and in Classical art-forms, which transforms human practice, to the effect of increasing the *potential relative population-density* of a society with improved demographic characteristics.

It is from that standpoint, and that alone, that a rational comprehension is possible, of the relationship between microeconomic and macroeconomic relations. Arrow's groping effort to show the efficient action of future upon present, is given an appropriate, rational expression, only in these terms of reference. This is also the most efficient choice of issue, in respect to which all attempts to apply systems analysis, or Arrow's school of "operations research," to human behavior, are shown empirically to be hoaxes. This is the standpoint, from which to expose as fact,<sup>19</sup> that all of today's widely accepted classroom doctrines in economics underlie the design of today's global monetary-financial and economic disasters.

### The 'thermodynamics' of a minimum wage

The comprehension of that underlying relationship between microeconomic and macroeconomic phenomena, is illustrated in the following, "thermodynamical" terms of approximation.

The commonplace, ignorant opinion of today's economics textbook and classroom, is recognizable as echoing the German Romantic socialist Ferdinand Lassalle's "iron law of wages": the notion of "wages" associated with a supposed "bare minimum" needed to support the existence of the laborer, treating the laborer as though he or she were merely another farm animal. Contrary to Lassalle, in the first among Gottfried Leibniz's presently published works on the subject of physical economy, his 1671 *Society and Economy*,<sup>20</sup> Leibniz introduces the rational notion of necessary level of wage: that the required minimum wage is a function of the required level of productivity of the members of society. The absolute content of the market-basket of household consumption, must

be increased as the required level of present and future productivity is increased.

Restated, the notion of "necessary wage," must be a notion analogous to the use of "energy of the system," in ordinary thermodynamics.

The nature of that functional relationship is best illustrated, in first approximation, by examining the implications of the correlation: between the potential general productivity of a labor-force considered in its entirety, and the level and quality of education.

The highest level and rate of technological progress, combined, achieved by the United States' economy, was reached during the turning-point years of 1966-1969. After that turning-point, the net direction of the economy, as measured in physical-economic terms, has been downward, at a secular rate of more than 2% average contraction per year. The implied task, is to estimate the level of household consumption required to maintain the level and rate of technological progress, within the society as a whole, expressed by man's first landing on the Moon. We are aided in constructing such estimates, by such evidence as the 1976 report of Chase Econometrics, to the effect that the U.S. economy as a whole was returned fourteen dollars of growth for each dollar spent on the U.S. government's aerospace research and development program of the 1960s. The task of estimating that market-basket, includes the assumed policy, that all of the U.S. population were to be brought up to the standard which is implicitly typified by the aerospace tool-making sector's most critical contributions to the manned Moon landing.

Focus upon education. In today's terms of reference, our task is, implicitly, that of achieving a relative perfection of universal education of the young, up to the implied scientific, technological, and related, *cognitive* standard.

"Cognitive" signifies an education based upon the principle of *knowing*, as distinct from the qualitatively lower standard, the principle of mere *learning*, the latter the principle of mere "textbook education." "Cognitive" signifies that the student's education is based upon the student's reexperiencing the valid, axiomatically revolutionary original discoveries of science and Classical art-forms, such that the student *knows* each principle, as if he or she had lived through both the reenactment of the original act of discovery, and its experimental validation.

The goal of such universal education is, that all future citizens shall know the most crucial among all of those discoveries of principle contributed by all mankind's historic existence, and also those other principles which pre-historic society transmitted to us. This mandatory universal education of the future citizen, must take the student through secondary and undergraduate levels, to the effect of encompassing the reenactment of all the most crucial knowledge existing up to the present time.

This mandates a typical class-size of not more than fifteen to seventeen pupils, requires teachers with the qualifications implied, and prescribes facilities to match both the teaching

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18. E.g., in terms of a formal "theorem-lattice." Bernhard Riemann generalized this notion in his 1854 habilitation dissertation, *Über die Hypothesen, welche der Geometrie zu Grunde liegen*. See, *Bernhard Riemann's Gesammelte Mathematische Werke* Reprint of 1902 A.G. Tuebner, Stuttgart edition (New York: Dover Publications, 1953), pp. 271-287.

19. Contrary to the empiricists, the quality of knowledge is not sense-experience, but, rather, the method by means of which what is claimed as knowledge has been obtained. On that account, the highest quality of factualness is found among Platonic ideas; the truthfulness of facts is to be adjudged through application of the principle of hypothesis as "yardstick." The principle of guilt, "knew or should have known," is an example of the method by means of which a finding of "fact" is to be supplied, and the method by which such a finding is properly subjected to tests of truthfulness (e.g., absence of such fallacies of composition as are fostered through suppression of relevant evidence).

20. As republished in *Fidelio* Fall 1992.

requirements and access to education by the population. This signifies a definite size of the educational labor-force, and a modal school-leaving age of between twenty-two and twenty-five years of age. Situating those requirements in a physical economy such as that of the U.S.A. 1966-1969, defines a set of constraints bearing upon the division of labor, capital-intensity, and infrastructural development, of the society. Those requirements, bearing upon the composition of a combined market-basket of household, agricultural, manufacturing, infrastructural, educational, health care, and science-and-technology services, taken together, and measured in terms of per capita of labor-force, per household, and per square kilometer of relevant land-area used, define the minimal standard income of that society, required to maintain that level of technology. In the language of thermodynamics: "energy of the system."

This example illustrates the point, that no competent measure of performance of an economy, could separate the demographic well-being of the whole population from "economy" otherwise defined. It is man's power over nature, expressed in terms of per capita, per household, and per square kilometer of a nation's usable territory, and expressed in terms of improvements in demographic characteristics of the population taken as a whole, which is the basis for any competent measure of economic performance. The correlation of the cognitive content of education, with the physical productivity of the total labor-force, per capita, illustrates this correlation. Only a productive population, typified by modern industrial nation-states' levels of health and life-expectancy, could sustain a population capable of the degree of productive power which the 1969 Moon landing typifies.

Although the effective realization of the potential of modern science, demands corresponding increases in capital-intensity, power-density, usable qualities of water per capita and per square kilometer, and so on, the mere satisfaction of those constraints does not cause the increase in the potential relative population-density of the society. Although bounded by such constraints, the increase of the productive power of labor, is "caused by" those advances in the cognitive powers of labor per capita which we have associated, here, with a Classical mode of education.

This brings us to the crux of the incompetence of generally accepted classroom economics, worldwide, today.

To this effect, restate the implications of a Classical mode in cognitive education, as follows.

Return attention to the referenced implications of Riemann's 1854 habilitation dissertation. Consider the Cartesian and analogous notions: Euler's 1761 assumption, that three dimensions of space, plus one of time, are extended, linearly, each, with perfect continuity, without limit. Consider the correlated, Newtonian, algebraic mis-conception of matter, space, and time: that, material action occurs within a quadruply-extended, Cartesian-like space-time. Reject this notion of matter, space, and time, as Leibniz did, and in more detail, as Riemann did.

As Riemann emphasizes, at the outset of his dissertation: The popular conceit to be discarded, is the delusion, that the Cartesian-like notion of a "Euclidean space-time," is either a mirror-image of the universe, or that, as the empiricists prefer, at best, that these notions of space and time are given to our Aristotelean, in-born *tabula rasa*, through our sense organs; and, that these assumptions are, therefore, the best estimates of space and time we might adopt as axiomatic.

In fact, the history of successful, axiomatic-revolutionary discoveries of physical principle, shows us that the characteristic effect of these discoveries upon mathematical thinking, is to force us to abandon those axiomatic notions of physical space-time which the experimental evidence has obliged us to regard as paradoxical, as flawed. The measurements which validate each such discovery, oblige us to recognize that action in physical space-time occurs in a characteristically different way than we had previously assumed. We are obliged to say, that our measurement, of the geodetic pathway of least action within physical space-time, is changed in this way. This new physical principle has, in each instance, a quality of extension, such that, in this respect, it mimics, and supersedes, functionally, the notion of extension we had associated with naive notions of space and time. Hence, we abandon quadruply-extended, Cartesian, algebraic space-time, for a physical space-time of an expanding number of "dimensions": From  $n$ , through  $n+1$  dimensions, and beyond.

Thus, since Riemann's work, we speak of a Gaussian geodetic *curvature* of physical space-time. We speak, as Riemann did, of the ordering of successive, valid discoveries of axiomatic-revolutionary physical principle, in each instance, as of the order  $(n+1)/n$ . We must apply this approach, not only to axiomatic discoveries of physical principle, but also to those discoveries of Classical art, and related discoveries, which have analogous import for the effective, cognitive modification of human behavior.

As Riemann's work requires, regard each resulting difference in the axiomatics of mathematical physics (for example) as an *hypothesis*, in Plato's sense of that term. Thus, the series of the ordering  $(n+1)/n$ , is a series of hypotheses, each thus representing a formal theorem-lattice, the which is pervasively inconsistent with those hypotheses which have been superseded in this way. Each such "gap" among successive hypotheses has the formal-mathematical, or analogous quality of a formal hyperbolic, or quasi-analogous, absolute discontinuity.<sup>21</sup>

21. It is useful to compare this with the axiomatic principles underlying Riemann's paradigmatic notion of isentropic compression, as in his *Über die Fortpflanzung ebener Luftwellen von endlicher Schwingungsweite, Werke* (op. cit.) pp. 156-175. Lord Rayleigh, for example, staked the authority of all the kinematic (and geometrical principles) accepted by the British empiricists and the positivists, on the presumption that Riemann's notion of isentropic compression was false; Rayleigh and his co-thinkers were thus discredited absolutely, by Rayleigh's own standard, through the Prandtl-Busemann application of Riemann's principle to the problem of design for transsonic and supersonic powered flight. As will be elaborated in forthcoming publication of the work of others, following the work of the late Professor Robert Moon, the crux of the issue between the electrodynamics of Gauss-Weber-Riemann, and

Thus, a competent Classical education's impact upon the mind of the student, is to increase the density of such discontinuities per interval of mental action by that student, then, and thereafter. The level of relative increase of the density of axiomatic (i.e., absolute, or "theorem-lattice") discontinuities, must be conceptualized as a notion of efficient potential. The realization of this potential has a well-defined correlative in economic development. Describe that correlative in the language of approximation supplied by classroom thermodynamics.

To sustain the growth of society, according to the indicated demographic terms, it is necessary, not only to maintain the level of energy of the system (per capita, per household, per imputable square kilometer); the rate of growth must be sustained, despite the rise in relative capital-intensity and power-density of means of production and distribution. This rate of growth is expressed in terms of a ratio of "free energy" to "energy of the system," but under the condition that the three features of the "energy of the system" increase in material cost<sup>22</sup>: 1) in physical terms of market-baskets' content; 2) in terms of capital-intensity; 3) in terms of power-density. The primary constraint, is that, despite the increase in absolute material cost of the "market basket" corresponding to per-capita "energy of the system," the ratio of "free energy" to "energy of the system" must not decline.

This constraint is no mere fiction; it is the characteristic physical-economic (e.g., demographic) feature of every successful phase up-shift of known human existence. The source of the increase sufficient to satisfy such values for today's momentary ratio of "free energy" to "energy of the system," is that increase in cognitive power of the individual associated with the notion of a Riemann phase-shift of the form  $(n+1)/n$ . This form, or *type*<sup>23</sup> of phase-shift, is the only notion which deserves the term "not-entropy."<sup>24</sup> This notion of "not-entropy" provides the solution for the paradox noted by Arrow.

the mechanistic opposing school of Clausius, Grassmann, Maxwell, et al., is the same issue, as it arises out of a close scrutiny of the relevant work of Ampère. In mathematics generally (e.g., the Bourbaki school), as in Euler's 1761 attack upon Leibniz's *Monadology*, and in Euler-Lagrange co-thinker Augustin Cauchy's bowdlerized revision of the Leibniz calculus, the problem posed by Riemann is evaded, by Euler's fraudulent tactic of 1761, of blindly "sliding through" discontinuities wherever they might be suspected to lurk. This is the most crucial issue of any effort to generalize a mathematical economics.

22. Per capita, per household, and per square kilometer.

23. "Type" is used here in the sense of "transfinite types" assigned by Georg Cantor, but as that definition were better situated within the context of Riemann's work.

24. We do not wish to consider the characteristic not-entropy of life, or of Vernadsky's "noosphere," within the text of this report. It is sufficient to acknowledge, that the definition of "not-entropy" applicable to the characteristic distinction of living, from non-living processes, parallels the definition of "not-entropy" characteristic of the distinction between cognitive and non-cognitive processes, hence, in the latter case, of viable and morbid economic processes. In general, it is useful to say, that human knowledge is situated with respect to a three-by-three matrix: the interaction among the domains of microphysics, astrophysics, and macrophysics, examined in terms of the

## 'Man as the measure'

It must be assumed, that a global culture as manifestly perverse as our own has been during most of this century, must have some flaw embedded within it, perhaps even numerous flaws. This is to say, that the very fact that an opinion is popular, might be sufficient grounds to suspect that it is also absurd; this distrust of leading opinion, lays its heaviest blows upon official and academic dogma, since it is the prejudices cultivated by these two latter institutions, the which must have incurred the greatest responsibility for shaping the leading policies of practice of, and among nations.

In respect to the relevant economic follies which have been perpetrated in the misused name of "science," the most pernicious, *axiomatically*, has been the influence of Aristotle. For the matter immediately at hand, the foremost of Aristotle's relevant frauds, are two: Aristotle's notion of the newborn human mind as a *tabula rasa*,<sup>25</sup> and the corollary assumption, that the scientific viewpoint is that of the *hesychast*: the so-called "contemplative" vantage-point.

Once we have accepted the decisive evidence of experimental physics, including that of physical economy, which supports the argument of Riemann's "Hypotheses" dissertation: We can no longer accept today's still-popularized illusion, of the Aristoteleans and their bastard offspring, the neo-Aristoteleans, such as Paolo Sarpi's Galileo and Antonio Conti's Isaac Newton.<sup>26</sup> No longer, must physics be misconstrued

interaction among processes which are, respectively, putatively non-living, living, and cognitive.

25. As John Locke aped Aristotle in the matter, and in the implications of this axiomatic presumption.

26. See Lyndon H. LaRouche, Jr., "How Bertrand Russell Became An Evil Man," *Fidelio* Fall 1994, and "How Hobbes' Mathematics Misshaped Modern History," *Fidelio* Spring 1966, passim. Galileo Galilei was the personal lackey and epigone of Venice's Paolo Sarpi; Galileo's empiricist method is that of his master, as of Sarpi's agent, Francis Bacon, Bacon's Galileo-trained intimate, Thomas Hobbes, and of John Locke after them. Abbot Antonio Conti (1677-1749) was the leading agent of Venice's intelligence services throughout Europe, from approximately 1708, until his death. Conti was the key figure behind those salons in France and Frederick the Great's Prussia which created the policies and reputations of Montesquieu, Quesnay, Voltaire, and Newton, and which deployed such famous agents of Venice's intelligence service as Giammaria Ortes, Dr. Samuel Clarke, the famous Casanova, and so on. The international fame of Newton, a dabbler in black magic, was created almost entirely by Conti and his salon (John M. Keynes, "Newton the Man," *Newton Tercentenary Celebrations* [Cambridge University Press, 1947]. Keynes, reporting on audit of the content of Newton's chest of scientific papers, wrote of his subject: "the last of the magicians, the last of the Babylonians and Sumerians."). Notably, what is commonly identified as British empiricism today, is that of Sarpi, Galileo, and their British students; this was derived from Aristotle, but Aristotle as simplified by Sarpi's favorite predecessor in this matter, William of Ockham. Earlier, a purely Aristotelean form of empiricism had been introduced to England by the Venetian monk famous as Henry VIII's marriage counsellor, Francesco Zorzi (a.k.a. Giorgi). As Kant explained in such locations as the Preface to the original edition of his *Critique of Pure Reason* and his *Prolegomena* . . . , Kant restored German empiricism after himself, to the standpoint of Aristotle as such. The Nineteenth-Century positivists, Romantics, existentialists, and phenomenologists are products of the influence of Kant's *Critique* . . . s.

as the individual's effort to situate observed mechanical behavior of objects as if these events had occurred within the descriptive mathematics of a merely presumed, "Euclidean" space-time. The relevant evidence shows, that the characteristic of man's successful efforts to increase his power over the universe around him, is rejection of Aristotle's influence, in favor of Plato's method of hypothesis, the method of Riemann, and of Leonardo da Vinci, Johannes Kepler, and Leibniz before him.

In turn, the characteristic feature of this successful increase of power, is due to valid, axiomatic-revolutionary advances in human knowledge, respecting physical (or analogous forms of) principle. These proven principles are, each and all, of the form of Platonic ideas, not empiricist ones. This poses that problem which has been central to physical economy since G. Leibniz founded the latter branch of physical science. The question posed, is: Since this evidence shows that we must not rely upon the mere repeatability of experiments designed according to Aristotelean or Galilean principles of empiricist mathematical physics, what is the method by which presumed knowledge of the universe must be proven?

The answer is a question: Does man's axiomatic-revolutionary change in notions of physical (or, analogous) principle, result in an increase of potential relative population-density, or does it not? The relevant question is: Is the faculty of creative reason, by means of which valid Platonic ideas are acquired, an efficient means for discovering those laws of the universe which every pre-existing mathematical physics must, invariably, violate? Is there any other method, by means of which, such axiomatic-revolutionary improvements in the demonstrable efficiency of human knowledge, might be accomplished?

The historical demonstration of these principles of physical economy discloses, that nature's increasing proneness for obedience to that expression of creative reason, shows that it is this method of hypothesis, as identified by Plato, Nicolaus of Cusa, Kepler, Leibniz, and Riemann, which is the source of man's dominion over nature. *That agency of creative reason, that domain of the method of hypothesis, is the principle which the universe is predesigned to obey.* That is the nature of the Great Experiment, in the domain of physical economy, from which all relative certainty in human knowledge is derived.

*Man himself is the sole measure of the truth knowable by man:* This is the fundamental principle of a science of physical economy. This is the proper, governing principle upon which all science and Classical forms of art depend.

## How the future controls the present

Those preconditions met, we may now direct our attention to the fallacy underlying Arrow's failure to conceptualize his notion of future determining present. For this purpose, imagine two sets of curved surfaces, as follows.

There are two members of the first set of curved surfaces. The first, is a surface corresponding to the physics of the level of science achieved by society, as Riemann identifies this

functional notion of hypothesis, in his habilitation dissertation. This curved surface represents one of a series of hypotheses in the Riemann series  $(n+1)/n$ . The second, is a potential function: a curved surface corresponding to the changing relative potential productivity of the entire labor-force of a society which has realized the level of scientific progress associated with the first curved surface.<sup>27</sup> The loci of interaction between these two curves represents the characteristic action of the society associated with the two, correlated curved surfaces.

In the second set of curved surfaces, the first of two corresponds to the rate of Riemannian up-shift along the pathway of the  $(n+1)/n$  series of scientific advances. The second curved surface, reflecting Plato's "hypothesizing the higher hypothesis," is the rate of increase of potential productivity correlated with the first of these two curved surfaces.

And, so on, as implied.

Consider the relevant application of Arrow's terms "present" and "future," to the notion of economic process appropriate to the interaction among the two sets of curved surfaces.

In the mechanistic, or empiricist/positivist notions of "causality," the "causal sequence of events" is fairly described as "percussive," or "kinematic." Preceding event A causes subsequent event B, which, in turn, causes a relatively subsequent event C, and so on. Thus, according to the dogma of the empiricists, to speak of the future, is to commit oneself to identifying some specific future event, or related condition. To speak of future affecting present, one implies, to the person conditioned into acceptance of empiricist-positivist dogma, the existence of some "force," which might act upon present, as one might imagine the present to cause the future (a kinematic action in "time reversal").

Arrow references the popularity of that reductionist "model," but he also states he is referencing something different than that, the effect of imposing the *idea* of the future time, to shape man's actions in the present time. Man chooses to do this, or to do that, according to man's idea of the effect of preferring one choice of action over the conceivable alternatives. Arrow's subsequent exposition on this theme, shows that he understands this idea in a crude, linear, if sometimes useful way; but, he shows no sensibility of the epistemological domain into which he has wandered.

The formal remedy for Arrow's axiomatic fallacy in this matter, is located, most efficiently, by beginning with the 1882-1883 *Grundlagen* and associated *Mitteilungen* of Georg Cantor.<sup>28</sup> Situate Cantor's notion of *transfinite* within

27. I.e., the author's concept of "potential relative population-density," as also described above.

28. *Grundlagen einer Mannigfaltigkeitslehre: Ein mathematisch-philosophischer Versuch in der Lehre des Unendlichen* (Leipzig: 1883) First published in 1882, minus the 1883 preface, as *Über unendliche lineare Punktmannigfaltigkeiten*; see *Georg Cantor: Gesammelte Abhandlungen mathematischen und philosophischen Inhalts* Ernst Zermelo, ed. (Berlin, Heidelberg: Julius Springer, 1932). pp. 139-247. For Cantor's *Mitteilungen zur Lehre vom Transfiniten* (first published, 1887-1888), see also Zermelo, pp. 378-439.

the setting defined by Riemann's habilitation dissertation. View this, as Cantor did, as a modern representation of the same type as the solution, in Plato's later dialogues, to the ontological, "One-Many" paradox of Plato's *Parmenides*. Express that usage of the notion of a mathematical-physical "transfinite," in terms of the systems of interacting, Gaussian curved surfaces identified immediately above.<sup>29</sup>

Using Cantor's notion of the *transfinite*, as (once again) situated within the domain of Riemann's habilitation dissertation, consider what is wanting in Arrow's linear definition of an economic-functional notion of the future, his reducing the matter simply to a linear idea about the future. This conception of the way in which future may act efficiently upon the present, echoes Plato's notion of *hypothesizing the higher hypothesis*, and also, the revival of this Platonic principle of memory, with respect to music, of Ramon Llull's *Ars Magna*. That forewarning supplied, we now proceed.

Begin with the first set of curved surfaces, described above. In this case, the fact that we are operating, presently, under the governance of a choice of Riemannian hypothesis which is superior to some other choice, signifies a characteristic difference in result, in the consequent employment of each of the two, with respect to the state of affairs at *any* choice of future time.

Let us express each of the two hypotheses in terms of Leontief, or kindred styles of input-output tables, for the economy as a whole. The result will be a time-series of such tables. Each will represent a set of coefficients and constraints, and some corresponding standard for allocation of labor-force and other values to the production function for that set of parameters. The result of each cycle, relative to one input-output table, will be a new table, with changed coefficients, with changed constraints, and, also, with some new columns and rows, and, perhaps, the dropping of one or more pairs of columns and rows.

The governing consideration in such a "thought-experiment," or actual management decisions, will be the way in which the allocation function is ordered, throughout a series of changes, over numerous cycles.

For purposes of illustration, consider a simplified model of thought-experiment. First, the case in which the level of

technology employed (the *hypothesis*) is constant throughout the experiment, in which case technological progress occurs as the unfolding of the technological potentiality of a fixed theorem-lattice, through the addition of new theorems of that lattice to the technologies actually employed, either in the table as a whole, or as improvement of some among the columns and rows of that table.

In that case, one may conceive of an "horizon," some fairly selected number of cycles later, and compare the difference in result resulting from the choice of an allocation function based upon one principle, rather than another. This must be the physical-economic result estimated in terms of potential relative population-density (and associated demographic constraints) for the society considered as an entirety. The comparison leads us to the notion of a measurable definition of the "functional future," the measurable difference, in terms of potential relative population-density, between two allocation functions, over time.

In this case, the future appears to us in the form of a choice of pathway of unfolding development.

However, since all allocation functions which might be premised upon a fixed hypothesis are intrinsically entropic, one must treat the use of the first set of curved surfaces as a pedagogical exercise through which one prepares oneself to attack the notions associated with the second set of curved surfaces. Those notions may be introduced, for classroom or kindred occasions, in the following manner.

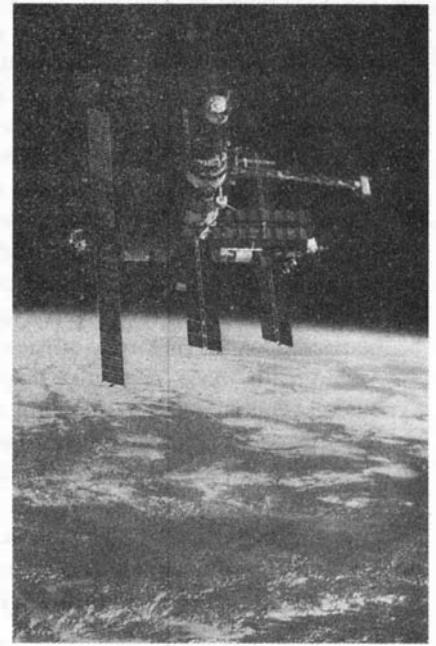
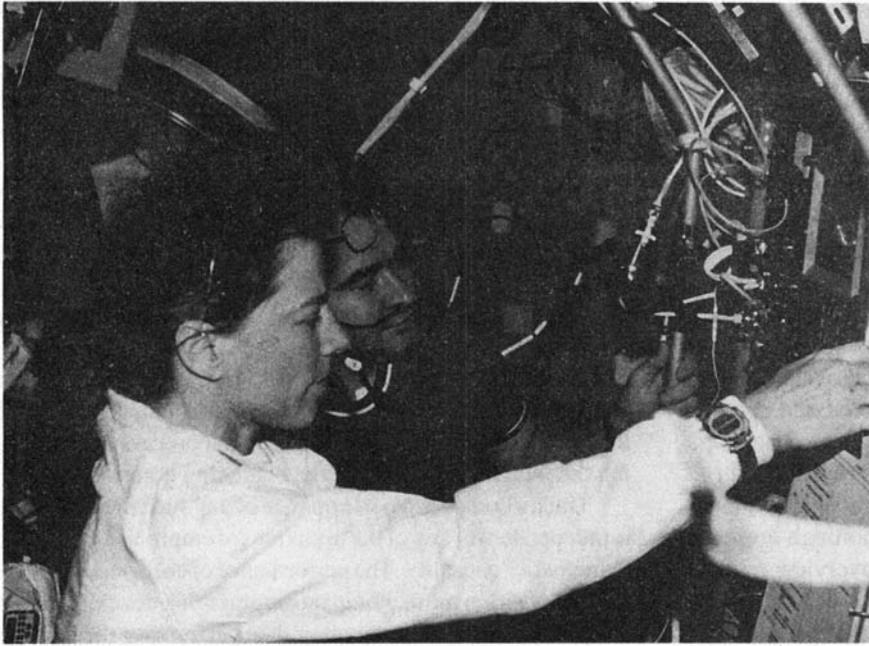
The implied set of axioms which expresses the underlying hypothesis of a theorem-lattice, represents a principle of change governing the effect upon the lattice as a whole, of the elaboration of each new acceptable theorem of that lattice. This is a fixed characteristic, akin to the *One* of Plato's *Parmenides*; this characteristic itself is not altered over the course of time. This is equivalent to a Riemann curved surface of constant physical space-time curvature of  $n$  dimensions, such as the first curved surface in the first set identified above.

The second curved surface, the potential function, in that same set, is a function of development in time. The relationship between the two curved surfaces of that set, indicates the nature of this function. For the circumstance that, during a certain period of lapsed time, the growth of potential relative population-density of a society occurs within a Riemann up-shift from  $n$  to  $n+1$  dimensions, the increase of potential reflects extended development and application of the constant (technological) theorem-lattice. Thus, the potential changes in that manner (even for the case, that the characteristic of the technological hypothesis remains unchanged over time, from the beginning to the end—from *alpha* to *omega*—of that lapse of time).

Thus, for that case of first-approximation, the choice of a certain (e.g., technological) hypothesis, according to the set of inequalities and constraints I have provided (for example),<sup>30</sup>

29. As a matter of pedagogy, this writer recommends the following background to the references to Gauss on biquadratic residues and general theory of curved surfaces, as met in Riemann's habilitation dissertation. Begin with the mathematically simple, but epistemologically profound, experimental-physical estimate of the size of the Earth's meridian by Eratosthenes. Examine Gauss's work on geodesy, and on related matters of astronomy and geomagnetism, in light of Gauss's work, beginning his *Disquisitiones Arithmeticae*, on the subjects of biquadratic residues and curvature. (Note the connection of this to that work, on "non-Euclidean geometry," which Gauss fearfully suppressed during his lifetime.) The importance of this pedagogical approach, is indicated by the fact that Eratosthenes estimated the Earth's meridian more than two millennia before any man had seen the curvature of the planet: Taking the ancient Greeks' work on related subjects into account, the idea of curvature thus arose in human knowledge as a Platonic idea, not an Aristotelean or quasi-Aristotelean notion.

30. Lyndon H. LaRouche, Jr., *So, You Wish to Learn All About Economics?* Second Edition (Washington, D.C.: EIR News Service, Inc., 1995). *passim*.



*Astronaut Bonnie Dunbar and cosmonaut Gennadiy Strekalov shortly after the July 29, 1995 link-up of the Russian Mir space station and the U.S. Space Shuttle Atlantis. Right: Rendezvous operations of Mir and the Space Shuttle Discovery. "The long-term realization of Russia's potential requires a science-driver 'crash program' of several decades duration, done with significant degree of cooperation with other nations. . . . It is probable, that a science-driver, long-range space-mission orientation, would be the most suitable kernel of such a science-driver orientation."*

signifies a transfinite pathway, a potential curve of a certain curvature. Instead of measuring today's decisions against some conjectured event at some infinitely distant point, we measure in terms of the ongoing transfinite value, the characteristic of the potential function.

The second set of curved surfaces corresponds to a true "crash program" of task-oriented scientific development. This is the model of Plato's Athens Academy, over the less than two centuries of its scientific accomplishments, from Plato through Eratosthenes. This is the model of Leonardo da Vinci's life's work. This is the model of Kepler's development of the original form of a generalized mathematical physics. This is the model of Leibniz's life's work. This is the model of the work of Leibniz's followers, of the 1794-1814 Ecole Polytechnique, under the direction of Lazare Carnot's collaborator, and former teacher, Gaspard Monge. The U.S. Manhattan Project is also a relevant model of "crash program." So was the work of the German space-pioneers assembled by Dr. Hermann Oberth. My own 1985-1986, original design of a forty-year "crash program" aimed at initial establishment of a science-city colony on Mars, is an example of a most appropriate model of science-driver economic-development "crash program" for our planet today.

A true such science-driver "crash program," corresponds to the image of Riemann's  $(n+1)/n$  ordering: choose, as a mission, some targetted accomplishment, whose realization demands a series of Riemannian phase-upshifts in science hypotheses. As outlined in earlier published locations and

classroom lectures, the several leading distinguishing features of a general design for such a science-driver "crash program," are as follows.

1. The pivotal requirement of such a program, is the adoption of some practical goal, whose realization requires the qualitative extension of the boundaries of scientific hypothesis, at the largest and smallest extremes of scale, respecting correlatable implications for each and all among putatively non-living, living, cognitive, microphysical, astrophysical, and macrophysical phenomena. The design of the project envisages the pathways of inquiry by which each and all of those implications are to be encountered and overcome.

2. The characteristic feature of the program for implementation of such a science-driver "crash program." This characteristic is located in the connection among crucial experimental apparatus demonstrating a new physical principle (or, related discovery), the derivation of a refined machine-tool principle from that experimental design, and the "spill-over" from the contribution to the mission-orientation, into the increase of the productive powers of labor in the society more generally.

3. The physical-economic characteristic of an appropriate design for a science-driver "crash program," emphasizes the necessary rise in physical elements of (market-basket) cost per capita, per household, and per relevant square kilometer of land-area, together with increased requirements for rising capital-intensity of mode, increasing power and power-density, and so on. These requirements must be satisfied under

the condition, that the ratio of “free energy” to (rising values of) “energy of the system” does not decline.

The succession of advances in respect to physical principle, corresponds to a Plato lattice of *Many* hypotheses, all ordered according to the notion of  $(n+1)/n$ . The *One* which subsumes that *Many*, is the relevant notion of *higher hypothesis*. The notion of variability of measurable effect of alternate choices of *higher hypothesis*, corresponds to the notion of *hypothesizing the higher hypothesis*. Here, our attention is to be focussed upon the hierarchy of Riemann curved surfaces associated with those respective hypotheses and higher hypotheses. Our attention to that array is focussed upon the physical-economic potential functions which are characteristic of each hypothesis and higher hypothesis considered.

As Plato and Ramon Llull indicate, Classical principles employed through methods of motivic thorough-composition, in music, illuminate the conceptual overview required for considering the example of the science-driver, “crash” program.

A motivic thorough-compositional work of the type associated with Wolfgang Mozart, Beethoven, and Brahms, exhibits a quality of required performance which the conductor Wilhelm Furtwängler famously named “playing between the notes.” This characteristic feature of such masterworks in music, emerges in the adoption of what Friedrich Schiller describes, for Classical tragedy, as a “germ” idea. The typical germ is a pair of musical intervals constituting a contrapuntal motive. Every part of the ensuing composing must be derived only from contrapuntal development of the initial germ-motive. The characteristic generation of apparent dissonances, serves as the stepping-stone for resolution in the development of new modalities out of the paradoxical relations generated from the preceding modalities. These dissonances have the significance of “formal discontinuities,” the equivalent of the mathematical discontinuities which signal the paradoxical intervention of some previously overlooked physical principle. This continues through a concluding such resolution, which resolves the process of development of the modalities of the composition, and thus brings the composition to its completion.<sup>31</sup>

In preparing performance of such a work, the performers must work through the process of motivic thorough-compositional development, up through the point of completion. At

that latter point, reached in that way, there exists a *metaphor*, the ironical Platonic idea which, in the mind of the musician, subsumes the composition as a whole, is the distinctive “soul” of the composition taken in its unity as an entirety. With this metaphor in mind, the performer must rework his way, from the initial, motivic germ, through each phase of the developmental process leading into the concluding metaphor. This metaphor, which is the “future,” relative to each preceding moment of the composition’s unfolding development, then acts, within the performer’s mind, to shape the performance of each present moment with the end metaphor in view. No element of the composition can be treated independently of the composition treated as a contrapuntal process of developing the final metaphor out of the beginning germ.

Thus, a competent performance of any such musical work is independent of any of the principles of empiricist-positivist, “kinematic” causality. The performance of each phrase within the composition must anticipate the emerging development of the concluding metaphor, rather than performing the passage according to purely local considerations. Hence, we must reference Plato’s principle of “musical memory”; hence, as Furtwängler insisted, every interval in the work as a whole must be performed “between the notes.”

In motivic thorough-composition, the process of contrapuntal development carries us, through resolutions, toward a final resolution, the metaphor defining the piece as a whole. This unfolding process should be recognized as an unfolding of ever-more complex modalities. Thus, what the performer is addressing, in presenting the opening germ, is not the modality immediately associated with that germ, but, rather, the entrance to the subsuming modality which will be affirmed at the close of that performance. Hence, with respect to the score as written, or as convention might imply a performance treatment of the passage, one must not play the notes; one must situate the passage within the process of generating the final modality, thus requiring an interpretation of that passage not as literally written, but as intended by the composer’s design: “between the notes.”

It is the same in economy. One must also “play between the notes,” according to the adducible principle of development which is carrying us from present into the future.

Thus, as in music, that “future,” which is controlling the “present” moment of development, is not the future of the Aristotelean’s absurd horizon at an infinite distance forward in time. The efficient “future” lives in the present, expressed as the superiority of one *transfinitely* characteristic ordering-principle over an alternate choice of ordering-principle.

That principle is the idea of “not-entropic” process as given functional form through the notion of the ordering principle of higher hypothesis central to Riemann’s habilitation dissertation. The coupling of that notion of the ordering of scientific and Classical-artistic progress, with the demographic principle of potential relative population-density, defines the action upon our minds through which the

31. In earlier locations, this writer has referenced his experience with this principle, beginning with Mozart’s Fantasy K. 475, and tracing this through such derived compositions as Beethoven’s Opus 111, and the related later compositions of Johannes Brahms. He has noted that it was the celebrated violinist, Professor Norbert Brainin, who solved the present writer’s problems in this matter, by supplying his own work of two decades or more in the matter of Joseph Haydn’s notion of *Motivführung*, the which set Mozart’s development of a Bach-referenced motivic thorough-composition into motion. See, Lyndon H. LaRouche, Jr., “That Which Underlies Motivic Thorough-Composition,” *EIR*, Sept. 1, 1995, and also, “Norbert Brainin on *Motivführung*,” *EIR*, Sept. 22, 1995.

future controls our steering of the economic, demographic present.

## Emotion and science

Thus far, it has been stressed here, that physical economy is, in formal terms, an extremely sophisticated branch of physical science. It differs from the customary view of physical science, in the respect that the primary subject of economic science is the basis on which all scientific knowledge depends: The question, whether human knowledge is valid, is the question whether the method by which valid, fundamental discoveries of principle are generated, the human creative mental processes, do, or do not generate an increase in mankind's per-capita power in the universe.

Yet, physical economy also deals explicitly with that aspect of human emotion which is integral to the act of valid creative discovery in physical science and Classical art-forms alike. The science of the basis on which human existence depends can not detach itself from reality on the mere pretext of so-called "scientific objectivity." In physical economy, it is the subjective behavior of the human intellect itself, which is the primary subject of inquiry.

It is of crucial relevance to that point just made, that when we study the work of a formalist, such as Aristotle or Immanuel Kant, or of the typical Nobel Prize economist, or devotee of the cult of Bourbaki, we experience something akin to the sensation of looking into the eyes of a dead man. There is no real emotion there; the goal of Kant's devotee, the notorious Savigny, has been realized: absolute severance of art from natural science. The severance has left both art and science dead. In real science, as in real art, the vital sign is what Plato and the Christian Apostles John and Paul recognize by the Greek *agapē*, that powerful emotion which Plato associates with love of truth, love of justice, love of mankind, and, therefore, love of valid, axiomatic-revolutionary principles of art and science. The act of valid, axiomatic-revolutionary discovery of a new principle (or, original rediscovery of an old one), is among the most profound of the emotional experiences of which the human individual is capable.

The quality of deadness among the typical Nobel economist, is key to the sterility pervading most of the discussion by Director Markarov's U.S. interlocutors in the July 1995 transcript. Here, in the connection just identified, we find the cause of those economists' failure to comprehend the proper power of the future over the present.

This is demonstrated by comparative reference to the cases of the virtually aboriginal English empiricists, Hobbes and Locke. What is the passion of these two English gentlemen? Editing out the dirtiest parts, they share that perverse view of human nature which locates the governing principle of human behavior in an unexpurgated version of the Seven Deadly Sins. All human action in society is presumed, by them, to be so motivated by a very seamy sort of universal, individual "human nature": the war of each against all, in

pursuit of property-titles festooned with sordid entertainments. Thus, Hobbes, like Locke after him, degrades society to a kind of kinematic gas theory; from this, their empiricist notion of causality is derived.

On this account, the empiricists insist, "Hypothesis is not necessary." For them, the Seven Deadly Sins, situated in such a kinematic "gas theory" model of society, all set within the sausage-casing of "Euclidean space-time," is the single, unchangeable set of axioms underlying all human behavior, and that of nature in general, too. As for Hobbes, in particular, metaphor and the subjunctive are banned from all British institutions, together with hypothesis. From this, is derived the hedonistic calculus of the evil Jeremy Bentham, from Bentham is derived the dogma of James and John Stuart Mill, of Walras' Lausanne School, and the theory of marginal utility, and so on.

In contrast to these empiricists, *the history of mankind is the history of hypothesis*. Those discoveries of valid principle serve us as the spoor of *agapē*'s passion, for we know that every original act of discovery of a valid principle of science or art comes to us with that sort of passion of creativity, whether our experience of such a Platonic idea is the reenactment of the original discovery by one decades, centuries, or even millennia before our time, or an original discovery of our own. The passion which Hobbes and Locke impute to human nature, is that of the brutes, or worse; the passion upon whose efficiency the very existence of a human species depends, does not exist for such dead Englishmen as Hobbes and Locke.

What is the passion which drives the accomplished scientific worker? Money? In most cases, a scientist might have gained more money as a gangster, or crooked used-car dealer. Science, like Classical art, is a vocation which grips one with a powerful sense of personal identity in society, which seizes one inwardly with the passion of Archimedes' cry of "Eureka!" whenever some important breakthrough is achieved.

There are few great, or even merely very good scientific workers this writer has known, who did not also have a passion for Classical musical compositions, who did not partake of Plato's agapic love of truth, love of justice, love of mankind.

This topic was touched upon, from a different standpoint, by a famous U.S. psychoanalyst, Lawrence Kubie, in a series of studies centered around his book, *The Neurotic Distortion of the Creative Process*.<sup>32</sup> The typical case, as perhaps painfully familiar to many among us, is the student who has a record of academic brilliance and promise, until about the time of final preparations for his terminal degree. About that time, or a bit later, his earlier creative promise vanished. His personality has changed; he seems no longer capable of recognizing his former self. Of him, we have said, "He has gone stale." A touch of Hobbes and Locke has crept into his person-

32. (Lawrence: 1958). See, also, L.S. Kubie, "The Fostering of Scientific Creative Productivity," *Daedalus* Spring 1962.

ality, and, it appears, the former creative, agapic self, has fled, abandoning the hulk of what had been.

The agapic, creative emotion, is as essential to scientific creativity, as to the composition and performance of Classical art. The U.S. counterintelligence agent and poet, Edgar Allan Poe, described the creativity of both the real-life and fictional Dupin, as “soaring.” That agapic impulse is, in direct contrast to the inhuman nature of Hobbes and Locke, the typically human emotion, the quality of mental life which sets the human species absolutely apart from, and above the beasts.

In his 1962 *Daedalus* essay, Kubie stressed the role of “drill and grill” in education, as contributing significantly to the loss of scientific creativity among formerly promising students. In other words: formalism, the substitution of “text-book education” of mere learning, for Classical humanist emphasis upon knowledge. Once the property-title of terminal degree and professional status (by whatever means) supplants the joy of discovery, the creative impulse appears to fall away, and the contemplative pedant appears. Little else seems more damaging than these considerations, excepting the dichotomy of art and science, argued by Kant, and legislated by his follower, Savigny. The replacement of Classical humanist education of the future citizen, such as that designed by Schiller and Humboldt, by the division of higher education and its preparatory phases between art and science, has been the most important source of induced sterility among the practitioners of both art and science.

Exemplary is the absurdity of popular economic dogma today. The characteristic immorality of the Nobel Prize economist is that of the fascist devotee of the Mont Pelerin Society, whose reckless disregard for human life is seen in his attempt to separate the idea of political-economic performance from the betterment of the human condition of mankind taken as a whole. The essence of real economy, physical economy, is the fact that only individual persons are capable of generating and assimilating those valid new hypotheses upon which we have depended, absolutely, for the uplifting of mankind from the level of several millions or fewer, beast-like hominids. To perform this function adequately, those persons must be developed to the degree this task requires. They must be educated accordingly, and they must be afforded the preconditions of environment, means of production, and household life consistent with the intellectual nature of their task. Above all, it is the whole society, whose potential relative population-density, and whose demographic characteristics, must be maintained and enhanced to that effect.

Experience has shown, the recent seven years experience, most emphatically: Economics without agapic passion, is not science, but, rather, today, as in Adolf Hitler’s heyday, a form of crime.

### **In summary**

Most of what is taught, and accepted today, respecting the principles of economic policy, is nonsense.

The unprecedented improvement in the potential relative population-density, and associated demographics, of world humanity, has been a result of the emergence of the modern European nation-state, together with the impulse toward universal education, beginning the Fifteenth Century. The relatively most successful model of economy is what was formerly known as “The American System of political-economy,” as that was associated with the teachings and work of Benjamin Franklin, Alexander Hamilton, Mathew and Henry Carey, Friedrich List, and U.S. President Abraham Lincoln. In all the intervals of history that “American System” has been employed, it has represented what today’s economics doctrinaires prefer to identify as a “mixed economy,” as distinct from the former Soviet model, or the British “free trade” model. It can be shown, moreover, that all successful forms of modern economy has depended upon a very large role by the national government in the direction of the economy, and also the kindred role of regional and local branches of national government.

Indeed, without the “protectionist” form of nation-state, the world economy must continue to collapse. The essential role of the state includes the obligation to provide basic economic infrastructure, in providing an adequate, well-regulated, and well-defended currency, and associated credit system, in ensuring universal education, in promoting scientific and technological progress, and in organizing combined public and private institutions to provide an adequate health-care and public health institutions. Without these functions of the central nation-state, in the national and world economy, modern civilization would collapse into a global dark age, comparable to, but far worse than that of Europe’s mid-Fourteenth Century.

History has corroborated science, in demonstrating that the provision of basic economic infrastructure is an economic sector best assigned to sovereign national governments, whether in the form of direct governmental investments, or government-regulated public utilities. Experiments in deregulation have proven to be a mass-murderous farce. History has already demonstrated, that the most efficient generator of growth in agriculture and manufacturing, is the entrepreneurial, private firm which enjoys certain legal protection and related benefits from government, in return for the firm’s efficient dedication, by word and matching deed, to the performance of some public good.

In this division of labor between the state and the entrepreneur, the nature of infrastructural development and maintenance requires a long-term planning function in respect to that aspect of national economy. In the entrepreneurial sector, the principle of half-life of long-term investments in capital of productive capacity, and related considerations of rates of technological attrition, also require long-term commitments by government (respecting the government’s impact on conditions under which the firms will develop and function). Entrepreneurs also require assistance in estimating medium-

to long-term opportunities and conditions affecting their operations and investment commitments.

Otherwise, it were well said, that "free market" soon comes to signify "flea market," and also, criminality.

Those ostensible professionals who preach of "global economy," of "free trade," and all of the other ideological fantasies about economics in wide currency today, are charlatans. Most of the relevant professionals are charlatans, and their credulous clients dupes.

Russia, although presently in greatly reduced circumstances, is a world power. It is presently weaker than the U.S.A., but in the same tier of world power. The other world powers, are China, and the British Empire (Commonwealth). Although Russia is the largest nation on the planet, its comparative economic advantage is far less its extensive raw natural resources than the residue of the great military-scientific industrial complex which it built up under the circumstances of the 1930s-1940s, and the age of nuclear conflict. This scientific complex, if remobilized, represents the basis, not only for uplifting the productive powers of labor within Russia itself, but to supply an important, growing segment of the technology export wanted to transform the world's greatest concentration of population: Near, South, and East Asia.

Four preconditions must be satisfied, in order that the potential comparative advantage might be realized.

1. Russia's most obvious general economic deficiency is the lack of sufficient development of the basic economic infrastructure corridors wanted to conquer the vast land-area of European and Asian Russia and its "near abroad" partners. Without efficient infrastructural development, the underdeveloped vastness of this territory will virtually destroy the potential otherwise located within local industrial and agricultural production.

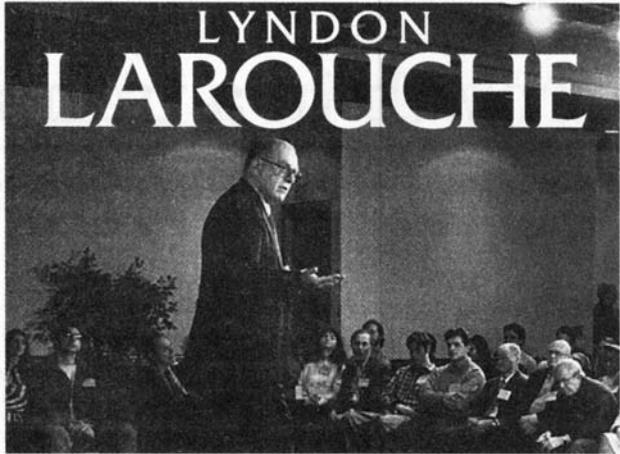
2. The most urgent task, to be undertaken with the development of infrastructure, is the build-up of Russia's national economic security in agricultural products.

3. The general development of manufacturing, and also agriculture, must allow Russia the protectionist regulation of its foreign exchange and trade wanted, to enable it to focus relatively scarce means for purchasing imports into those areas of the most critical internal economic bottlenecks.

4. The long-term realization of Russia's potential requires a science-driver "crash program" of several decades duration, done with significant degree of cooperation with other nations, to develop Russia as a source of new, more advanced generations of technologies for its own domestic use and its role in the international division of labor. It is probable, that a science-driver, long-range space-mission orientation, would be the most suitable kernel of such a science-driver orientation.

The challenge represented by the present condition of the world as a whole, most notably Africa and Asia, requires collaboration among leading world powers, and others, to establish a stable world political and economic order among

DEMOCRATIC PRESIDENTIAL CANDIDATE  
**LYNDON LAROUCHE**



REPORTS ON HIS POLICY  
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perfectly sovereign nation-states. We must think ahead, in this matter, not less than two or three generations, perhaps even a century. We need Russia as a leading partner in that great venture on behalf of all mankind.

The future of humanity depends upon our willingness to scrap, immediately, the kinds of "New Age," "post-industrial," utopian delusions which have dominated the world's economic and related policies during the recent thirty years, especially the most recent twenty-five. The survival of mankind now demands a choice, between scrapping the present IMF-dominated system, or scrapping most of the human race, instead.

Admit that the "free market reforms" have been lunacy, and that the version of these reforms imposed upon Russia (among others) was intentionally mass-murderous. Scrap those reforms; scrap the "free trade" and "globaloney" lunacies. Not only allow Russia to adopt the protectionist reconstruction program urgently needed, but cooperate with Russia (and other nations) in working toward the success of that reconstruction.

As for the "medical advice" given to Russia by the IMF or by Nobel Prize economists generally, one must say of such practices, that carrying a deadly infectious disease, is not the kind of successful experience with sickness which qualifies one as a physician.