

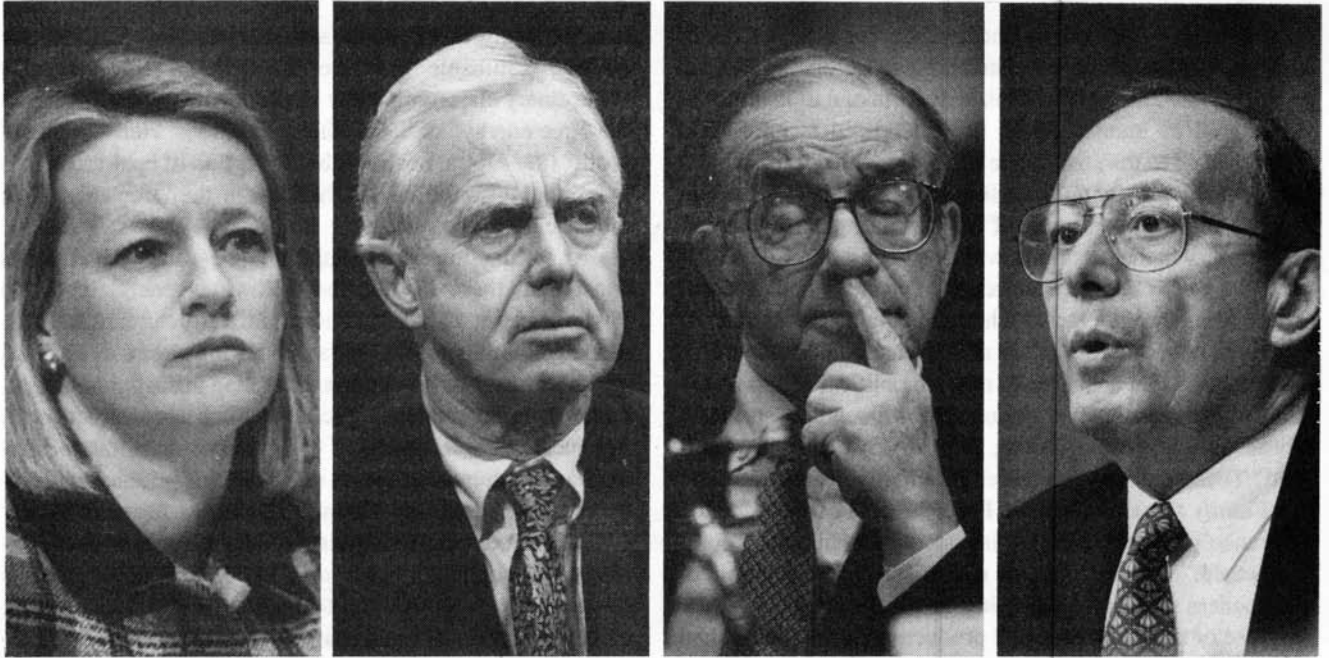
The dynamics of the global economic breakdown

by Lyndon H. LaRouche, Jr.

It is impossible to represent any political-economy competently, unless every existing national economy, and also that of the world as a whole, is understood as a process of dynamic interaction among axiomatically distinct types of political-economic processes, the which are as distinct from one another as the different species which interact within a jungle habitat.¹ The failure of financial authorities and others to comprehend this issue, is key to the fact that governments, as well as leading monetary and financial institutions, in their blindness to this scientific issue, have mis-led the world to the very brink of the greatest economic collapse in modern history.

The corollary of the ontological paradox defined by Plato's **Parmenides**, is that any single element of an array described as a "Many," can exist, both simultaneously and efficiently, as a phenomenon of two or more mutually exclusive axiomatic systems. The meaning of that fact is supplied, not by the individual phenomenon as such, but, rather, by the "One" which subsumes the "Many" of

1. The model of reference for our employment of the term "axiomatic," here, and throughout this report, is formal (i.e., deductive) Euclidean geometry. All of the allowed propositions of such a system form a deductive lattice-work of theorems (e.g., a "theorem-lattice"), provided each is not inconsistent with any among the set of axioms and postulates underlying each and all theorems of that lattice. That set of underlying, axiomatic assumptions represents, thus, what Plato defines as a *species* of deductive system. The Euclidean type is also one of the lower forms of what Plato defines as an *hypothesis*. "Hypothesis" also signifies a fundamental discovery in science: i.e., the replacement of one set of axioms by another set—a new hypothesis, defining thus an absolute formal discontinuity between the first axiomatic system (theorem-lattice) and its successor. As Bernhard Riemann emphasized ("*Die Unterscheidung, welche Newton zwischen Bewegungsgesetzen oder Axiomen unter Hypothesen macht, scheint mir nicht haltbar. . . .*" **Werke** [New York: Dover Publications, Inc., 1953], p. 525): Newton spoke falsely when he wrote "*hypotheses non fingo*," his entire system rests upon hypothetical assumptions, either copied from Sarpi-Galileo, or arbitrarily supplied by himself. As Riemann notes, at least one axiom within Newton's system, respecting motion and inertia, is untenable.



The blindness of the financial "authorities" to the issues of scientific method has brought the world to the brink of economic collapse. Shown here are participants in a Jan. 5, 1995 hearing of the Senate Banking, Housing, and Urban Affairs Committee, on the issue of financial derivatives. Left to right: Mary Schapiro, chairman of the Commodity Futures Trading Commission; Arthur Levitt, chairman of the Securities and Exchange Commission; Federal Reserve Board Chairman Alan Greenspan; Sen. Alfonse D'Amato (R-N.Y.), chairman of the committee.

which that individual phenomenon is perceived, axiomatic-ally, to be a member.²

The manner in which this problem presents itself in the domain of economy, should prompt us to think, comparatively, of the broadly analogous, anomalous relationship in the interaction of non-living and living processes generally. A related topic might be the study of effectively interacting processes on the respectively macroscopic, sub-atomic, and astrophysical scale.

This notion, just stated, is the required, rigorous approach to correction of the prevalent, worldwide occurrence of *fallacy of composition* in today's economic analysis and forecasting.³

2. Plato, **Parmenides**, in **Plato: Cratylus, Parmenides, Greater Hippias, Lesser Hippias**, trans. by H.N. Fowler, Loeb Classical Library (Cambridge: Harvard University Press, 1926).

3. The famous example of "fallacy of composition" is "man is a featherless biped." For example: fallacy of composition is a principal means used by politically motivated Federal and state prosecutions in bringing about, fraudulently, criminal conviction of innocent defendants. For example: In **U.S.A. vs. LaRouche, et al., 1988 (Eastern District of Virginia: Cr. No. 88-00243-A)**, in addition to the prosecutors' heavy reliance upon their own lying and subornation of perjury, the most notable trick employed to achieve fallacy of composition was a fraudulent *in limine* ruling, which suppressed precisely that evidence which would have shown that it was the prosecution, rather than the defendants, which had perpetrated each and all of the offenses with which the defendants were charged. Relative to the fraudulent "man is a featherless biped": Man is the only creature which has the manifest ability to change willfully its own characteristic behavior as a species: Any defini-

Significantly, according to this rule of scientific method, any event in the U.S. economy today, is both an individual phenomenon within the axiomatic domain of the monetary system, and, simultaneously, in that physical-economic process which lies axiomatic-ally, outside the monetary process's theorem-lattice.

The most effective way in which to address the complications which arise from such coincidences, is to begin from the standpoint of the relevant, conflicting axiomatics. In this approach, before examining the statistical arrays presented, one must first define the process as an interaction among the relevant, mutually exclusive axiomatic systems represented. Only after that task has been completed, should the statistical array be analyzed.

Summary review: axiomatics of political-economy

Begin our consideration of interaction of axiomatic-ally mutually exclusive systems, with a summary review of the mutually exclusive species of modern political-economic doctrine and practice.

What is known as "modern political economy," grew out of the A.D. 1461 accession of France's King Louis XI to become the founder of the first modern, sovereign nation-state. The reforms in statecraft pioneered under Louis XI,

tion of man which does not include the facts bearing upon that uniqueness of our species, is a fallacy of composition.

revolutionized human existence, producing a new form of society, which had never existed prior to Europe's Fifteenth Century. The emergence of this new form of national economy, based on state ordering of generalized technological progress, led to the emergence of modern European civilization as the dominant political force on this planet. All subsequently influential currents of thought on modern political-economy, whether cohering with, or opposed to Louis XI's reforms, were obliged to address that phenomenon of "macro-economic profit," the which is a distinguishing characteristic of the durable form of all modern national economies.

The principal doctrines of modern political-economy are divided, axiomatically, among five influential "species." These "species" are assorted, in turn, between two "families." These may be represented summarily, as follows.

Family #1: Cameralism. From the time of the accession of France's Louis XI, and the introduction of his new, "commonwealth" form of modern nation-state, the emphasis of the modern statecraft following in his footsteps, was the increase of the well-being and productivity of the individual and family household, per capita of labor-force, per household, and per unit of land-area utilized. The spectacular success of France's national economy under Louis XI's "commonwealth" policies, is exemplary. This view of required political-economic practice, was a characteristic feature of a branch of studies in statecraft known as "cameralism."

During the most recent three centuries, there has been but one "species" of this axiomatic "family." That species emerged during the late Seventeenth Century, as the impact of Leibniz's revolutionary application of his principles of a science of physical economy to the cameralist statecraft of France's great minister, Jean-Baptiste Colbert. The characteristic outgrowth of the combined influence of Colbert and Leibniz, is known as the "*American System of political-economy*," as associated with such names as U.S. Treasury Secretary Alexander Hamilton, Mathew Carey, and Friedrich List.

This axiomatic "species" of political-economy is best represented by aid of this writer's own original discoveries, dating from work of the 1948-52 interval; this resulted in a more advanced version of Leibniz's original *science of physical economy*.⁴

Using a modern classroom's language, the elements of consumption of *those* specific qualities of physical goods and services which are functionally essential for maintaining the current rate of "macroeconomic" profit-potential, may be described as "the energy of the system" of that political economy taken as a whole. The increase of the output of those

specific qualities of goods and services, in excess of the currently estimable "energy of the system," represents what the ordinary classroom today would identify conveniently as the "free energy" of the productive process. Hence, "rate of profit" (per capita, per household, per unit of land-area used) is typified descriptively as the ratio of the "free energy" to the "energy of the system."

As to functionally essential qualities of physical goods consumed, these include the following general types. 1) Physical goods: a) Basic economic infrastructure; b) Agricultural and mining goods; c) Manufacturing goods; d) Physical goods of forms of production other than infrastructure, agriculture, mining, and manufacturing, such as construction. 2) Services, or "soft" forms of basic economic infrastructure: a) Classical-humanist forms of content of primary and secondary education, and Classical-humanist forms of higher education (excluding positivist pseudo-sciences such as sociology, anthropology, behaviorist psychology, and "political science"); b) Scientific and technological progress as such; c) Those aspects of health-care which are essential to maintaining and improving the demographic characteristics of health and longevity of the population and its households.⁵

Other categories of services, to the degree they are essential to the functioning of the modern form of nation-state, are treated as "general overhead," and are properly limited in relative quantity by a strict sense of how much of this should be allowed, as distinct from excessive growth of sales, bureaucratic, and non-essential "service" functions in the private and public sectors.

The key to maintenance and growth of the scale and rate of profit is energy-intensive, capital-intensive modes of investment in scientific, technological, and related cultural progress. The correlative of this, from the time of France's Louis XI, is the introduction of the Classical-humanist methods of secondary education as the basis for bringing children and adolescents, including orphans and offspring of economically poor households, into a secondary-educational program which tends to foster the production of geniuses.

One may sum up the result: The source of the not-entropic growth of a successful form of modern nation-state's political economy, is the nurture and expression of that creative potential of the individual person which otherwise sets the human species axiomatically apart from, and above all other species.

Family #2: "Profit" as a Metaphysical Secretion of an Epiphenomenalist Principle of Formal Logic. The first

5. The relevant measurements consider not only the ratio of "free energy" to "energy of the system." The level of "energy of the system," per capita (of potential labor-force), per family household, and per unit of land-area employed (e.g., per square kilometer), must be taken into account. The power, usable-water throughput, and ton-miles/hour of freight (all considered per capita, per household, and per unit of land-area), which correspond to that level of technology, must also be considered. It is man's willful change in society's relationship to nature, which is the subject of our measure of effective productivity.

4. See Lyndon H. LaRouche, Jr., "On LaRouche's Discovery," *Fidelio*, Spring 1994. On the application of that discovery to political-economy, see his introductory textbook, *So, You Wish to Learn All About Economics?* (New York: New Benjamin Franklin House, 1984) and his *The Science of Christian Economy* (Washington, D.C.: Schiller Institute, 1991).

influential attempts at a theory of political-economy contrary to the cameralist practice of Louis XI, Colbert, and Leibniz, emerged beginning the early Eighteenth Century. Each of the “species” of political-economy of this axiomatic family-type, is commonly characterized by the attempt to explain the appearance of “macroeconomic” profit according to the notion of *epiphenomena* outlined in Aristotle’s frankly hysterical **Metaphysics**.

Until the appearance of the *systems analysis* dogma of John Von Neumann, during the late 1930s, there were but three notable “species” of this family. In order of their appearance, they are a) the pro-feudalist *Physiocratic* dogma of France’s Dr. François Quesnay, b) the pro-financier-nobility dogma of the British East India Company’s Haileybury school, typified by Adam Smith’s **Wealth of Nations**, and c) the dogma which Karl Marx’s **Capital** derived from an axiomatic change in the dogmas of both the Physiocratic and Haileybury schools of political-economy.

The additional, fourth species of this same family emerged during the most recent several decades. The axiomatic innovations in the Haileybury school introduced by John Von Neumann (“systems analysis”) and Prof. Norbert Wiener (“information theory”), have become the political-economic dogma of the “Third Wave” cult, as typified by Britain’s Lord William Rees-Mogg, Alvin Toffler, and U.S. Speaker of the House of Representatives Newt(on) Gingrich.

Quesnay, a French asset of the Venice intelligence service, and an ideological spokesman for France’s neo-feudal, chronically treasonous, anglophile *Fronde* tradition, insisted that profit is an epiphenomenon of the “Bounty of Nature,” which is asserted to be God’s gift to that class of feudal landowners to whom God has given their property-title. Smith copies—virtually plagiarizes—the French Physiocrats Quesnay and Turgot, for the most part; he copies blindly and faithfully, Quesnay’s feudal dogma of *laissez-faire* as “free trade;” but, he changes the axiomatic definition of the source of the epiphenomenon of profit, from the feudalists’ “Bounty of Nature,” to the London, Venice-modelled, financier-nobility’s tribute from the “Bounty of Trade.” Karl Marx shifts the epiphenomenon axiomatically, to the labor of the proletariat; Frederick Engels goes so far as to attribute technology to epiphenomena of the mechanics of the opposable thumb. The contemporary followers of Von Neumann and Wiener, such as Toffler, Rees-Mogg, and Gingrich, shift the axiomatically attributed source of profit, axiomatically, to the epiphenomena of modern mechanistic gas-theory, Wiener’s gas-theory-based dogma of “information.”

Within each of the two, mutually exclusive “families” of modern political-economy, each species is distinguished from the others by some included difference in axiom. The respective “families” are distinguished from one another by a difference in method of defining the axiomatic principles underlying a theorem-lattice. In Plato’s method, for example, the set of axioms which underlies any species of theorem-

lattice, would be identified as an *hypothesis*; the difference in method which renders “families” of such “species” mutually exclusive, would be identified as a matter of *higher hypothesis*.

The interaction of individual phenomena common to systems of mutually exclusive axiomatic quality, must be viewed in this light. The key to mastering that challenge in terms such as those of modern mathematical physics, is implicitly provided in Bernhard Riemann’s 1854 habilitation dissertation, “On The Hypotheses Which Underlie Geometry.”⁶

The British versus U.S.A. System

The simultaneous increase of a society’s per-capita “energy of the system,” and also a persistence, or even a rise in the ratio of “free energy” to “energy of the system,” is a clear “violation” of what are loosely described as the three “Laws” of Clausius-Kelvin thermodynamics. This aspect of modern European civilization is but a more conspicuous expression of the historical fact, of the not-entropic rise of mankind’s potential relative population-density, in a manner impossible among inferior species. That is a crucial fact of the matter which must be addressed, as a precondition for any competent examination of modern systems and doctrines of political-economy.

The academically formal difficulties thus presented are more readily overcome by a reference to the Nineteenth-Century origins of modern, positivist versions of taught thermodynamics. The manner in which Clausius, Grassmann, and Kelvin concocted this mechanistic interpretation of Sadi Carnot’s work, is aptly indicated by their fellow-ideologue James C. Maxwell. Maxwell was chided for using, unacknowledged, the discoveries of such predecessors as Wilhelm Weber and Bernhard Riemann. To this, he replied in a letter, that he had suppressed the fact of his plagiarism, which he considered justified by his faction’s refusal to recognize the existence of any physical geometries “but our own.” The arbitrary claim of “universal entropy” arose during the Nineteenth Century, in the manner indicated by Maxwell’s response. *That claim rests absolutely upon the validity of an arbitrary, axiomatic assumption imposed upon the mathematics employed by Clausius, Grassmann, Kelvin, Helmholtz, Maxwell, et al., in arbitrary counterposition to the greatest mathematicians and physicists of that century, such as Gauss, Weber, and Riemann.*

Clausius and Kelvin placed themselves in an absurd position, by arguing, implicitly, that their opinion is the epiphenomenon of a “not-entropic” process, human existence, a

6. *Über die Hypothesen, welche der Geometrie zu Grunde liegen*, Bernhard Riemanns gesammelte mathematische Werke (New York: Dover Publications, Inc. [reprint of original Tübner 1902 edition], 1953), pp. 272-287. Riemann should be read in his own, Platonic terms, disregarding the “spin-doctored” commentaries of authorities antagonistic to Riemann’s principle, from the pro-Hegel Prof. Felix Klein, on down.

process which that opinion decrees could not possibly exist.⁷

As long as we remain distant from those extremes of scale called microphysics and astrophysics, we remain in a (macro-scale) domain which either belongs to phenomena attributable to the senses, or nearly so. In this middle range of observation and ontological judgment, we distinguish three interacting families of axiomatically distinct species: *non-living*, *living*, and *cognitive*. Among these three, the second, the type known as living processes, is not-entropic relative to the characteristic entropy attributed to non-living process. Relative to all other types of living processes, the human higher cognitive processes stand in the same relationship to other living processes as do living processes generally to non-living phenomena of that macro-scale which is actually or implicitly the domain of sense-perceptions.

The substrate of the interactions between living and non-living processes, is the participation of ostensibly inorganic and other non-living (e.g., organic) material within the processes essential to the continued existence of living processes. Similarly, the cognitive processes of man subsume all living processes, and therefore, also, non-living ones.⁸ The coupling of axiomatically living to axiomatically non-living processes, as that link may be represented by the share of an individual phenomenon common to both, illustrates the class of analogous problem which confronts us in examining the coupling of an entropic monetary-financial process to a lawfully not-entropic physical-economic process.

At this moment, all of the nations of the world are dominated by an international regime which is expressed through the agency of the International Monetary Fund. Although the IMF is an institution of United Nations Organization (e.g., world government), it functions as a publicly chartered private corporation, which is in fact a joint-stock-company of the central banking systems of leading powers. These central banks are themselves publicly chartered, but privately held joint-stock companies, which represent leading banks and

related financial institutions of their respective nations. The entire system of central banking, the interest which the IMF actually represents, is constructed according to the principles of international monetary and financial practice associated with the London-centered international financier oligarchy. That oligarchy is itself a class of financiers modelled upon the financial nobility of pre-1798, medieval and modern Venice.

This system is a purely entropic one, in which profit appears only in the forms of usury. In other words, the Venice system of usury as profit, belongs to the type which Von Neumann et al. identify as a “zero-sum game”: One man’s meal is another man’s stomach.

As a matter of contrast, a modern physical economy is implicitly a not-entropic process, in which “macro-economic” profit occurs as “free energy” of a system in which the ratio of “free energy” to “energy of the system” is, modally, always positive. In that latter system, usury, including that of Venice-style monetary-financier practices, appears solely a parasitical form, an exacted tribute equal to a needless increase in the percentile of the total economy devoted to merely redundant, or intrinsically useless forms of “general overhead expense.”

In all systems of *Family #2*—Quesnay, Smith, Marx, and Von Neumann—profit exists, in fact of practice, only as the looting of either other nations, or of a subordinated large class of persons, or a combination of both. The looting is done by a ruling class, an oligarchy—e.g., feudal aristocracy, London-style financier-merchant nobility, proletarian dictatorship, an “information technocracy”—which imposes and maintains a de facto political dictatorship over both subordinated classes and nations. For all political-economies of this “Family,” profit exists only as something extracted by means of usury.

For example, in Volume I of his four-volume **Capital**, and in other places in that four-volume text, Karl Marx states explicitly, that he is leaving out of account the “technological composition of capitals,” and the effect of technological progress generally. As a theory of the political-economy of social-reproduction, Marx’s entire system breaks down, and becomes, in fact, a theory of profit through usury. This ontological blunder of assumption underlying his **Capital** as a whole, is an important factor in connection with what proved to have been the fatal flaw of the Soviet economic system, the reliance upon what leading Soviet economist Ye. Preobrazhensky had termed “socialist primitive accumulation”: the basing of the growth of the Soviet economy as a whole upon the looting of nature, slave labor, and subject nations.⁹

9. This fatal practice of Soviet “primitive accumulation” may be attributed in part to the costs of military expenditures; more significant, is the high rate of technological progress expressed by the leading edge of the Soviet military-industrial complex, in contrast to the technological sluggishness of the non-military sector, and the lack of the large-scale infrastructure wanted to transform the vastness of the low-population-density Soviet Union into a competitively viable economy. The relevant point here, is that the Soviet system did not accept either the principles of Leibnizian physical economy,

7. The writer has adopted the term “not-entropic,” to avoid the cultish use of the term “negentropy” by Prof. Norbert Wiener and his devotees. Wiener, a radical positivist, decrees that “information” in development and communication of ideas, including scientific discoveries of principle, is only an analog for electronic codes transmitted through a medium. On the basis of this assumption, Wiener argues that the gas-theory mathematics of Ludwig Boltzmann’s H-theorem applies to the assessment of the idea-content of human communications. To this effect, he employs a less-noticed, included feature of Boltzmann’s derivation of his famous H-theorem, the statistical possibility of temporary, local reversals of entropy; Wiener seizes upon this for his assignment of meaning to the term “negative entropy,” or “negentropy.” Out of the popularization of Wiener’s blunder, by the Massachusetts Institute of Technology’s Research Lab of Electronics and elsewhere, the popularized dogmas of combined “information theory,” “systems analysis,” and Korsch-Stalin-Carnap-Russell-Harris-Chomsky “linguistics” have proliferated.

8. We are leaving out of account, as not immediately relevant for this discussion, the suspected sub-atomic, optical-biophysical changes distinguishing inorganic materials participating in living processes, from the same materials encountered in non-living organic material.

As for the usurious model of doctrine and practice of the British economy, had it not existed, for more than two centuries, chiefly as a voracious parasite among nations, it could not have continued long to exist at all.

The pseudo-scientific assertion of some zero-growth ideologues today, that man's relationship to the universe at large is intrinsically entropic, is consistent, as a theory of usury, with the various forms of oligarchical society which are intrinsic to each and all *Family #2* political-economic dogmas. Only political-economies of *Family #1* type are premised functionally upon a not-entropic generation of relative "free energy."

Money and economy: temporary 'peaceful coexistence'

All competent discussion of the principles of modern economy must begin with attention to a revolution which emerged within Fifteenth-Century Europe. As has been stated in the pages of **EIR** repeatedly, prior to the Fifteenth-Century emergence of a never-previously existing form of society, the modern nation-state, more than 95% of all mankind, in all cultures, had lived as virtual human cattle, in juridical conditions comparable, at best, to serfdom, slavery, or even worse. A brief restatement of that point here, sets the stage for examining the somewhat complex axiomatic heritage which political-economy has acquired during the recent five-and-a-half centuries to date.

An explosive improvement in the condition of man under modern European civilization, began with the complex of developments centered around the A.D. 1438-41 Council of Ferrara-Florence, and the consequent establishment of France in the new form of a "commonwealth," under Louis XI, the new form of sovereign nation-state republic which is the predecessor of our own U.S. Federal Republic of 1789. Inspired, in significant part, by the program of secondary education developed by the Brotherhood of the Common Life, Louis XI's France used the fostering of the creative powers of both orphans and boys from poor strata of the population, as a means of increasing the percentile of the total population capable of assimilating and generating fundamental discoveries of principle in science, Classical art-forms, and technology.

This twofold revolution, the reestablishment of the shattered Catholic Church under the leadership of great figures such as Cardinal Nicolaus of Cusa and Pope Pius II, and the establishment of Louis XI's new-model France as a direct outgrowth of the Council of Florence, redefined the factional division of forces within European civilization and beyond.

or the superiority of the American System of political-economy to the British. Marx's fanatical defense of the "scientific" merit of British political-economy, in his attacks upon the American System of Friedrich List and Henry C. Carey, typify the issue. It was this doctrinal heritage of Marx's anti-scientific anglophilia, which has permeated the socialist movement generally, and which was a conspicuous feature of relevant Soviet official dogma.

On the one side, was the emergence of a modern form of sovereign nation-state republic; on the opposing side, the old, usurious forces of the oligarchical tradition, represented chiefly by the financier nobility of Venice, which had emerged, since the beginning of the millennium, as the traditional capital of usurious practices within medieval Europe. Thus, began a five-centuries-long conflict between the forces of good (the modern nation-state republic) and evil (the oligarchical heritage of Venice), which has not been resolved to the present date.

Since the middle of the Eighteenth Century, the paradigm of that conflict between good and evil forms of government, has become the conflict between the American System of political-economy—of Benjamin Franklin, George Washington, Alexander Hamilton, John Quincy Adams, and Abraham Lincoln—and the British monarchy. Britain's domination of the oligarchical forces of this planet, is the crucial issue of the present, systemic breakdown crisis of the world's interconnected monetary and financial systems. This set of circumstances did not come about all at once; knowledge of the history of this development is indispensable for understanding the functioning of the system today. On this account, we summarize the most essential, relevant points identified in earlier editions of **EIR**.

During the Fifteenth and Sixteenth Centuries, the leading opposition to the combined policies of the Council of Florence and of Louis XI's France came from both the Venice-centered financier nobility and the feudal aristocracy. The anti-nation-state alliance of the French feudal aristocrats with Venice, during the course of the Sixteenth, Seventeenth, and Eighteenth Centuries, is typical of the interplay among the sundry opponents of the Council of Florence. The feudalist Clement Prince Metternich's Holy Alliance of 1815-48, is typical of the same type of alliance, then against the influence of the American Revolution, between financier-nobility London and feudal-aristocratic forces of Russia, Austria-Hungary, and elsewhere.

Ultimately, there emerged today's alignments within the oligarchical adversaries of the modern sovereign nation-state institutions: Since the London-directed, Mazzini revolutions of 1848-70, the aristocratic remnants of the Holy Roman Empire and Holy Alliance have been either destroyed through successive revolutions and wars, or assimilated under the leadership of the financier-nobility power centered in the Anglo-Dutch monarchies.

Today, the only significant forces within European civilization, in Europe and the Americas, most notably, are the imperilled heritage of the anti-British, American System of political-economy, and that London-centered oligarchical reaction, the latter which are the heirs of the Venetian, Haileybury tradition of Adam Smith, as represented today by the arch-conspiratorial, fascistic Mont Pelerin Society.

The inability of the oligarchy to destroy the new form of national political-economy, combined with the failure of the new form of political-economy to crush its adversary, the

Venice-led oligarchical parasite, established a tragic symbiosis between the two, axiomatically opposed forms of political-economy. In this arrangement, the feudal relics, as long as their power persisted, functioned essentially as auxiliaries of the Venetian, financier-nobility-led faction.¹⁰ Until an extremely radical form of cultural-paradigm shift was introduced, during the interval 1964-72, the financier-nobility was unable to check decisively the impulses of the modern industrialized nation-state, and the political forces of the nation-state-interest were, overall, corrupted into accepting a continued symbiosis with the Venetian parasite and that parasite's superimposed monetary-financial system. In this fashion, the two axiomatically incompatible systems, the American System and the British model of oligarchical central banking, assumed their symbiotic form.

The secret of this prolonged symbiosis is located chiefly in the domain of military and related elements of strategic power.

Until the so-called Pugwash agreements to "Mutual and Assured (thermonuclear) Destruction" (MAD), reached between Moscow and Washington in the aftermath of the 1962 "Cuba Missiles Crisis," London's own designs for maintaining its world-domination depended upon balance-of-power conflicts among London's more powerful rivals. The effect of the 1962-63 agreements reached, partly through the mediation of Bertrand Russell, assured the Anglo-American establishment, notably strategic "utopians" such as National Security Adviser McGeorge Bundy and Secretary of Defense Robert Strange McNamara, that only limited, surrogate warfare was now possible between the two superpowers. In the view of that assessment, the utopian faction within the Western Alliance assumed dominance over all policy-shaping, and used that dominance to introduce a fundamental shift in policy: the "post-industrial" and "rock-drug-sex counterculture" shift of the 1964-72 interval.¹¹

From the completion of the scientifically revolutionary cupola of the Florence Cathedral, through the realization of Gottfried Leibniz's design for an industrial development based upon heat-powered machinery, the process leading from the Council of Florence through the emergence and development of the industrialized sovereign nation-state defined an interdependency between per-capita productivity on the one side, and fire-power and mobility of military forces

on the other. Thus, from the dissolution of the anti-Venice League of Cambrai, in A.D. 1610, Venice, and later London, maintained its oligarchical power in the face of superior forces, by playing one or more of its adversaries into "balance-of-power" wars against one another. Copying Venice before it, London relied upon establishing its island position as a global financial and maritime power, and playing the second-ranking of its adversaries against the first-ranking.

As long as Britain's power depended upon such "balance of power" warfare, it was impossible to evade altogether the strategic importance of continued productive investment in scientific and technological progress, in basic economic infrastructure, agriculture, mining, manufacturing, construction, and general educational and health policies. As long as the national interests were unwilling to free themselves of the London parasite, the nations were subjected to a division of authority, under which arrangement the national interests developed the physical economy, but the British and allied financier-oligarchical interests controlled the monetary and financial order in the world. Once London and its principal agents were persuaded that "MAD" agreements had eliminated the hazard of general warfare among leading powers, the long-standing tacit agreement between the economic and financier interests was broken: "Post-industrial utopianism" has dominated, increasingly, the trends in world economy and politics, since the assassination of U.S. President John F. Kennedy.

Accordingly, the present worldwide monetary and financial crisis represents chiefly the cumulative impact of two historical legacies from this present century: the 1901-63 policy of commitment to investment in scientific and technological progress, as the means for increasing the productive powers of labor; and, the 1964-95 efforts, to waste and ultimately destroy the agro-industrial-infrastructure base of the modern sovereign nation-state.¹²

This symbiosis, however unwholesome, could be expressed as a relatively peaceful form of relationship between parasite and host, during those moments the physical economy, the host, could produce a greater margin of "macro-economic" profit than was being consumed, as an "income-stream," by the parasite, the superimposed monetary-financial system. Prior to the 1964-72 change, during significant periods, whose duration might be a decade or more, the peace continued, before it was interrupted yet once again, by the social and political effects of so-called cyclical convulsions. Usually, after a period of economic depression, the relative peace was resumed for another decade or so.

The "devil in the detail" of that unwholesome peace between the parasite and host, is the inherent tendency of Venetian-style monetary and financial processes to create fictitious

10. The case of Venice's financing the Habsburg Holy Roman Emperor, Charles V, through the Fuggers, is an example of this Venetian financier-nobility's domination over the European feudal aristocracy.

11. One of the typical "markers" for the beginning of that shift was the 1964 publication of a report, **The Triple Revolution**, issued by the Ford Foundation-backed Center for the Study of Democratic Institutions. Following the Ford Foundation-orchestrated events of 1968, the post-industrial shift was effectively completed with such events of 1972 as the post-1971 international monetary conference establishing the speculator's paradise called the "floating exchange-rate" monetary order, and the post-election unleashing of the prepared "Watergate" assault on the institution of the U.S. Presidency.

12. It is not required that we document the details of this history here. Only the Rip Van Winkles who went into uninterrupted sleep about Oct. 31, 1963, are not familiar with the 1963-95 countercultural shift as the leading fact of contemporary life.



Nurses march on Washington, March 31, 1995, protesting the gutting of medical services. LaRouche writes, "The paradigm-shift which emerged out of the 1964-72 transition to a 'post-industrial utopia,' impelled the world economy into something quite different than a new cyclical crisis: into the kind of collapse associated with a general breakdown crisis."

forms of financial capital. It is on this point, this phenomenon, that there appear most clearly and simply the axiomatic differences between the real modern economy of agro-industrial capital and the monetary-financial system of the rentier parasites. In the industrial system, the relative value of any form of capital is determined as the incurred social cost of reproducing a replacement with new real capital of a quality equal to or better than that replaced. In the rentier domain, the matter is quite different; a purely fictitious form of nominal capital may be created by assigning a "market-price" to an income-stream; this is accomplished by selling the title to that expected income-stream at that nominal price: "financial leverage."

Through this parasitical mode of creating fictitious capital, "financial leverage," the total nominal capital of such a "mixed economy" may skyrocket far above the actual capital-values of the real economy. To the degree, this burgeoning mass of parasitical fictitious capital seizes control of sections of real estate and the productive sector itself, the result is the so-called "business cycle." However, after the bankrupting of sufficient volumes of the purely fictitious capital, the release of new volumes of agro-industrial production credit, combined with some technology-driver as stimulant, would mobilize a general recovery.

The paradigm-shift which emerged out of the 1964-72 transition to a "post-industrial utopia," impelled the world economy into something quite different than a new cyclical crisis: into the kind of collapse associated with a general breakdown crisis. A glance toward the statistical reports of EIR's John Hoefle, Anthony Wikrent, Christopher White, and their colleagues shows us some of the most crucial of the relevant facts.

Look at this distinction in "macro-economic" terms. In

the pre-1964 form of symbiosis between the two axiomatically distinct systems, the revenues of financial capital were derived, in net, from a portion of the operating profit of agro-industrial production as a whole. Through the mechanisms of industrial banking, and related modes of credit-flow into the productive sector of the economy, finance-capital maintained and enhanced its gross revenue, without significantly increasing its share of the operating profit of that productive sector. That was the precondition for the "peaceful coexistence" of the host and its rentier parasite.

Increase capital-intensity in an energy-intensive mode, and, all the while, maintain and build up extensive works in water-management, in power generation and distribution, in integrated modern transport and warehousing systems, in better communications, in improved public primary, secondary, and higher education, in investments in generating scientific and technological progress, and in improving the longevity and productivity of the population through improved health-care. These were, and are still, the preconditions for increasing the net, "macro-economic" productive powers of labor. That is the only way in which the Federal budget could ever be balanced. Those were the watch-words of progress and prosperity, which made the United States of America the world's most awesome economic success, prior to the 1964-72 cultural-paradigm shift.

Look at the results of Christopher White's expressing the official statistics in terms of market-baskets of consumption and production, per capita, per household, and per unit of land-area utilized (Figures 1 and 2). Since the high-point of about 1967-69, the standard of consumption for households, by category of productively employed wage-earner, has collapsed continuously. That is, if we measure the beans and bacon, clothing, housing, quality of education, and so forth,

FIGURE 1

Changes in U.S. population densities

(percent of 1967 level)

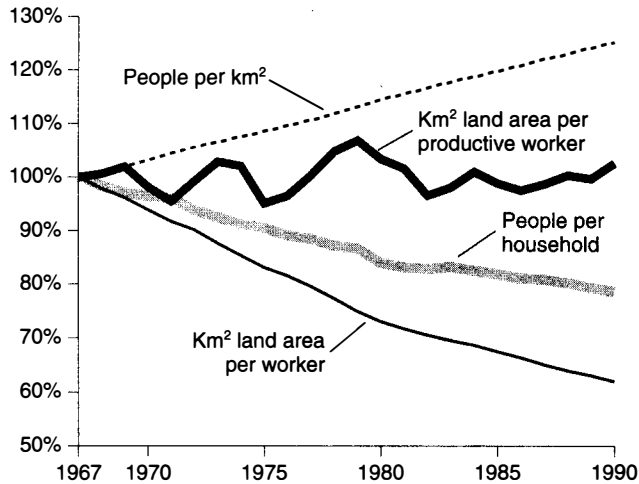
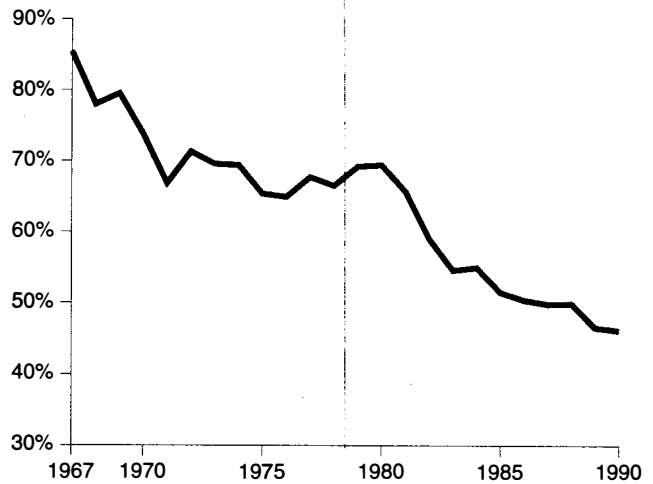


FIGURE 2

Employment of operatives as percentage of actual requirement



which that wage-earner's income may purchase, the American employed in productive occupations has become poorer and poorer during the course of the recent 25 years to date. The per-capita productivity of the total U.S. labor-force, as measured in the contents of the same market-baskets of combined household and agro-industrial consumptions, has also been declining over the same period. In fact, as measured in real, rather than financial terms, the U.S. economy has been operating at a net loss over the past 25 years.

However, during that same 25 years, since 1970-71, the U.S. financial economy has grown, approximately hyperbolically, over the same period the real economy has been in an accelerating collapse. The \$64 trillions question: Is this a mere statistical coincidence, or is the cause of growth of financial aggregates also the cause for the collapse of the real economy? Is the continued existence of *Family #2*, the entropic Adam Smith model, the cause for the spiral of collapse of the *Family #1* process, the real economy? Has the "Adam Smith model" become the malignant cancer which must be removed soon, if the host, the real economy, is to survive?

The answer is, "Yes." The growing size of the income-stream, from the real economy, upon which the parasite depends to survive, is the margin by which the rate of collapse is increased in the already negative-profit real economy. The fact that the survival of the speculative financial bubble of fictitious capital depends upon destroying the same real economy upon which the existence of the bubble depends, demonstrates that the present crisis is a systemic one, not a mere financial collapse, but a general breakdown crisis, leading toward the disintegration of existing monetary and financial institutions.

The peace between the parasite and host is now a thing of the past, forever.

The lack of peace, is a state of war. This war is not an abstract one; it is an actual war between the British monarchy, the political embodiment of the global parasite, on the one side, and the leading real-economy of the world, the United States, on the other. The power of the London-centered international oligarchy is chiefly its domination of the world through the financial power gathered around the International Monetary Fund and World Bank. That financial political power of the London-centered oligarchy, is being destroyed by this collapse: the distress of the London Warburg banking house, and the collapse of Barings and Lloyd's, typify the ongoing destruction of the majority of the financial pillars of the British monarchy itself. In this case, the "continuation of politics by other means" signifies, as we see, more and more, day by day, the shift from political-financial means, to such "other means" as the London-orchestrated Balkan wars and the escalation of international terrorism, even into the United States itself.

Why most taught 'economics' is a fraud

The fraud inhering in the taught economics of virtually all university classrooms today, reflects a series of ultimately related but distinct blunders of underlying assumption. These frauds not only dominate the university classroom; they are the frauds permeating the work of most Nobel Prize for Economics recipients. They have had a disastrous effect through their hegemony in the policymaking of governmental and leading private economic institutions throughout most of the world today.

Some of the blunders, in axiom and method, underlying



Friends of Lyndon LaRouche, members of the Civil Rights Movement Solidarity, campaign in a state election in North Rhine-Westphalia, Germany, August 1995. The poster reads: "Down with Asininity! Economic Construction, Not Financial Collapse."

those teachings, are special to the empiricist "social science" upon which taught economics, including Von Neumann's "systems analysis," is explicitly based. Others are adopted from the influence of the Hobbes-Locke doctrine of "human nature" upon the gnostic theological assumptions underlying the mechanistic mathematical physics of Galileo Galilei, René Descartes, Isaac Newton, LaPlace, Clausius-Kelvin, Helmholtz, and the modern radical positivists. To understand the present problem adequately, take a moment to dissect those principal such influences responsible for the pervasive incompetence of virtually everything taught as "economics" in the university classroom today.¹³

The common root of these hoaxes is the continuing influence, today, of the savagely incompetent, pro-oligarchical counter-method, which Aristotle developed, in his hysterical effort to discredit, and eradicate the scientific method of the recently deceased Plato.¹⁴ Taken in its whole, as a social and

political phenomenon, the British oligarchy of today, is a typical product of this Aristotelean heritage.

However, the Aristotelean heritage of the British monarchy, is of a special sub-type: the "neo-Aristotelean" followers of the majority faction within late-Sixteenth-, Seventeenth-, and Eighteenth-Centuries' Venice, the faction of Paolo Sarpi, the faction which created the Anglo-Dutch monarchy. Sarpi, the actual founder of modern, neo-Aristotelean empiricism and its positivist outgrowth, was the patron of such signal figures of England's early Seventeenth Century as Francis Bacon and Galileo Galilei; Thomas Hobbes was a shared asset of Bacon and Galileo. René Descartes is of the same genre, as are all of the British, French, and Austro-Hungarian empiricists, positivists, and existentialists, down through the present day's university classrooms.¹⁵

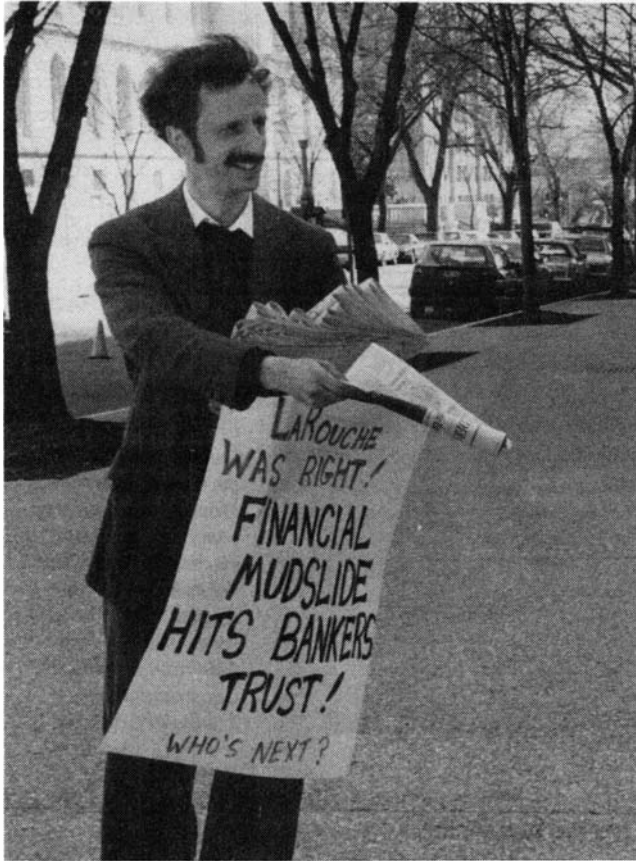
That dogma of British empiricism is the source of the principal, explicit fraud of virtually all generally accepted, "quackademic" varieties of today's university-classroom economics today.¹⁶ The center of that fraud, is the irrational-

13. On Galileo, et al., see Lyndon H. LaRouche, Jr., "Structures of Sin Still Rule the Nations," *EIR*, April 28, 1995, pp. 46-56.

14. During the period from Solon's anti-oligarchical, anti-usury reforms at Athens, through and beyond the death of Plato, the fundamental issue at the birth of European civilization, was the conflict between the republican principle of Solon, Socrates, and Plato, versus the Persian/oligarchical "model" of the Babylonian Empire continued under the Achaemenid dynasty. Aristotle, a trained sophist, and protégé and spy of both King Philip of Macedon and Isocrates' School of Rhetoric at Athens, was an adherent of the oligarchical method. This advocacy is demonstrated most luridly in his *Ethics* and his *Politics*, and his writings on metaphysics and method generally.

15. See, LaRouche, "Structures of Sin' . . .," *op. cit.*

16. The author and his associates first employed the neologism "quackademic" in post-August 15th 1971, to designate generally accepted classroom economics of that time (and, still today). The occasion for use of this neologism, then, was the Aug. 15-16, 1971 breakdown of the Bretton Woods monetary system: which every leading U.S. economist, excepting this writer, had proclaimed to be impossible. At that time, in response to this writer's charges on this account, a senior Keynesian economist, Distinguished Professor Abba Lerner, was selected as the champion, to defend the economics profession against this writer's charges of pervasive academic and other professional incompetence in this field. In the conclusion



Organizing on the streets of Washington, D.C., March 1995, for Lyndon LaRouche's economic recovery program, and against the "quackademic" economists.

ist teaching, that economic policies must be determined by "the market."

Had modern Europe and North America tolerated that nonsense-demand during earlier centuries, the world would still be less than 400 millions poor souls, over 90% wallowing in the impoverished, brutish illiteracy of serfdom or worse. Mankind would never have escaped from the murderous bonds of feudal servitude, Venetian usury, and even such more inhuman conditions of bestiality as Aztec rule. If we follow in the policies of Mont Pelerin Society ideologies, such as Newt Gingrich's "Contract with America," or irrationalist fanatics such as Sen. Phil Gramm, we shall rediscover the utopian conditions of pre-A.D. 1400 feudalism and barbarism, all too soon.

of that public debate, on New York City's Queens College campus, Lerner blurted out a confession of the accuracy of this writer's charges, that liberal economists would now move to promote fascistic forms of austerity against developing nations and others, modelled upon the practice of Nazi Economics Minister Hjalmar Schacht. Now, the post-1987 acceleration of the speculative avalanche in "derivatives," creates an analogous situation for most Nobel-Prize-winning and other professional economists; once again, most of them have been exposed by events, as "quackademics."

All of today's generally accepted university-classroom economics dogma, purports to explain the secrets of the not-entropic growth of the modern agro-industrial nation-state economy, from the standpoint of the ruling axiomatic assumptions of an entropic, linear system of pairwise truck-and-barter, all conducted under a regime of Venice-modelled system of usury. To define a putative model of modern society, these fellows borrow shamelessly, as the principal axiom of their systems, the same *laissez-faire* which Dr. Quesnay concocted to prescribe the non-interference of both government and urban institutions contrary to the empyreal prudence of the class of parasites known as feudal aristocrats. That is the same *laissez-faire* which Adam Smith plagiarized from Quesnay, as what today's victims of the mass-murderous IMF might fairly and bitterly describe as Smith's universal snake-oil remedy, "free trade."¹⁷

All of today's "quackademic" economists premise their views and method upon one or another species from among *Family #2* theorem-lattices: e.g., treat "macroeconomic" profit as an epiphenomenon of a "Bounty of Nature," or "Bounty of Trade," and so on. To wit: They deny the existence of an efficient expression of an individual's human creative powers of reason. So-called "information theory" and "systems analysis" are only more extreme, and much cruder than the celebrated German empiricist Immanuel Kant on this point.¹⁸ The issue is as old as the reductionist Eleatic

17. Compare "Structures of Sin' . . ." *op. cit.*, pp. 49-50, 53-56, on Bernard Mandeville, Adam Smith, and Galileo Galilei. Mandeville's 1725 "Private Vices, Public Benefits" gives away the secret of *laissez-faire*, "free trade," and the modern "Chaos Theory" of Ilya Prigogine, et al. Mandeville is also echoing Thomas Hobbes and John Locke: the argument that the random, pairwise interaction of evil individual impulses and acts converges asymptotically upon the production of the public good. Smith underscores this by explicitly advocating his employer's, the British East India Company's destruction of peoples, such as those of China, through traffic in opium, just as his devotee, Prof. Milton Friedman, has endorsed that drug-epidemic which has made the U.S. population (according to U.S. government reports of convictions and incarcerations) the most criminally inclined population of any nation upon this planet today. Might we not thus suspect that Mandeville's dogma—along with the "chaos theory" of Hobbes, Locke, and Adam Smith—might have been savagely disproven by the failure of Milton Friedman's little experiment?

18. Since most recent university teaching on the subject of Kant and his work is virtually illiterate, the following footnote on the historical position, and present-day relevance of Kant's doctrines, is supplied. Kant, born in 1724, became, approximately 1740-44, a collateral asset of the networks of Venice's spy-master Abbot Antonio Conti, closely tied to Conti's networks within Frederick the Great's anti-Leibniz Berlin Academy (Academy member Gotthold Lessing was a rare exception among Conti's anti-Leibniz crew of Maupertuis, Voltaire, Algarotti, Euler, et al.). The most notable early influence upon Kant during the early period was the influential specialist in bowdlerized, Aristotelean interpretations of Leibniz, the Newton devotee Christian Wolff. After that, he was strongly influenced by another product of the Conti-Voltaire network of salons, the pathetic Jean-Jacques Rousseau. During the middle of the 1760s through the middle of the 1770s, Kant became a devotee of empiricist David Hume. As Kant emphasizes in his apologia, the 1783 *Prolegomena to a Future Metaphysic*, his 1781 *Critique of Pure Reason* was a break, not with the young Hume, but the aged

school's attack on Pythagoras,¹⁹ Aristotle's attacks upon Plato, and Kant's attacks upon Leibniz. In their radical expression, these attacks insist that valid *ideas*, as Plato defines ideas, do not exist, apart from those derived from sense-certainty. In the alternative, like Kant in his own "Critiques," the notable opponents of Plato, Nicolaus of Cusa,²⁰ Leonardo da Vinci, Johannes Kepler, and of Gottfried Leibniz, have always insisted that if "intuitions" of such ideas might exist, new creations of that sort cannot be objects of intelligible foreknowledge.

All of these modern opponents of science were followers of Venice's teachers of Aristoteleanism. They are divided into two groupings, the first, the earlier, "stay south" grouping of Pietro Pomponazzi, Gasparo Contarini, Francesco Zorzi, et al., and the "strike north" Venice faction of the founders of British empiricism and, later, Kantianism, Paolo Sarpi, et al. This continuing, ancient dispute respecting the existence and nature of *ideas*, is, axiomatically, the crucial practical issue of political-economy today.

During the recent months, the present writer has adopted the famous measurement of the length of the Earth's meridian by Plato Academy member and Archimedes contemporary, Eratosthenes,²¹ as the model pedagogy which might be used for demonstrating to secondary pupils, among others, the

existence of Platonic "ideas." The relevant features of that measurement, are, summarily, as follows.

Suppose that two somewhat distant locations in ancient, Ptolemaic Egypt, Alexandria and Syene (Aswan), lie upon the same, astronomically determined North-South line, a common meridian. Measure the distance along that common line between the two points. Then, construct two duplicate sundials, as follows (**Figure 3**). Construct a hemispherical shell. In the "South Pole" of this shell, pointing (by aid of a plumb-bob) to the center of the Earth, insert a straight stick, along the extended line implicitly defined by the plumb-bob. Around the inside rim of the hemisphere, mark off gradations; at the points the Earth's meridian will intersect the rim of that hemisphere, draw the half of a great circle passing through the South Pole of the hemisphere; mark points of gradation along this line. Set one of these hemispheres in place in Syene, the other in Alexandria.

As each of the two sundials shows high noon, measure the angle which the stick's shadow casts along the semi-circle passing through the South Pole. Observe, then, that the angle of the shadow cast in Alexandria differs from the angle of the shadow cast in Syene. Given the fact that the distance between the South Poles of the two sundials is known, and the respective angles of the shadows, the estimated polar diameter of the Earth—to an accuracy within approximately 50 miles—follows, without trigonometry, by construction.

In the usual case such an experiment were presented, the most crucial lesson to be learned would be brushed over without attention. What must not be brushed over, is this: *How was it possible, that Eratosthenes could have measured, with such remarkable relative accuracy, a curvature of the Earth which no man was to have seen until 2,200 years later?* What Eratosthenes did observe with his senses, was not the curvature of the Earth, but, rather, an anomalous difference in two sense-perceptions: the difference in the angles cast by the respective shadows. Once that later qualification is made, we have defined the point at which we depart the realm of what is no more than useful engineering, to enter the realm of science.

All science, as distinct from the valuable, although inferior realm of engineering, is defined, not by ideas associated within sense-perception, but, rather, by the ideas which are generated by anomalies which appear to destroy the authority of sense-perception as such.

Consider related cases from the scientific achievements of Plato's Academy and its collaborators. Consider the case, that, before Eratosthenes' discoveries, at an earlier point during the Third Century B.C., Aristarchus had demonstrated that the Earth orbits the Sun—although, from the Second Century A.D., until Nicolaus of Cusa, Copernicus, and Kepler, official Europe is reputed to have believed the deliberate, Aristotelean fraud perpetrated by Claudius Ptolemy, the lying assertion that the universe orbited the Earth. Con-

Hume who had turned from early-Eighteenth-Century empiricism, to what became known as "Nineteenth-Century British philosophical radicalism," the radical empiricism of Adam Smith, Jeremy Bentham et al. Kant remained a mid-Eighteenth-Century empiricist to the end of his life (e.g., his 1790 *Critique of Judgment*). The rampant philosophical irrationalism of his last "Critique" became the virtual "bible" of the Nineteenth-Century German Romantic movement, of Karl Savigny, Franz Liszt, Richard Wagner, and other prophets of Twentieth-Century conservative-fascist currents in existentialism. For a prophetic insight into Kant, and Kant's fascistic tendencies, see Heinrich Heine, *The Romantic School* (1835), and *On the History of Religion and Philosophy in Germany* (1835). It was the radical positivism growing largely out of Nineteenth-Century "neo-Kantian" Romanticism, which turns up as the crucial axiomatic feature of both Prof. Norbert Wiener's pathetic "information theory," and the axiomatically correlated "systems analysis" of John Von Neumann.

19. I.e., according to Plato. See his *Parmenides*.

20. The principal attacks upon Cardinal Nicolaus of Cusa, since those of the reductionist Wenck, have been focussed against Cusa's use of Socratic method (e.g., *De docta ignorantia*=*On Learned Ignorance*) to found modern science. The forerunner of British empiricism was the relatively wide circulation in England of Venice agent Francesco Zorzi's attack, *Harmonia Mundi*, on Cusa's method of *docta ignorantia*. Cusa, in addition to being the leading agent of the Vatican in bringing about the 1438-41 Council of Ferrara-Florence, was the most important influence upon the development of modern science, via such self-avowed students of his work as Luca Pacioli, Leonardo da Vinci, and Johannes Kepler. (An English translation of Wenck's attack and Cusa's response is found in *Nicholas of Cusa's Debate With John Wenck*, Jasper Hopkins, trans. [Minneapolis, Minn.: The Arthur J. Banning Press, 1984.])

21. See *Greek Mathematical Works*, Ivor Thomas, trans. (London: Harvard University Press/William Heineman, Ltd., 1941), Vol. II, pp. 266-273. Eratosthenes' construction is being replicated currently in Europe, as a demonstration experiment for use in secondary-level educational programs.

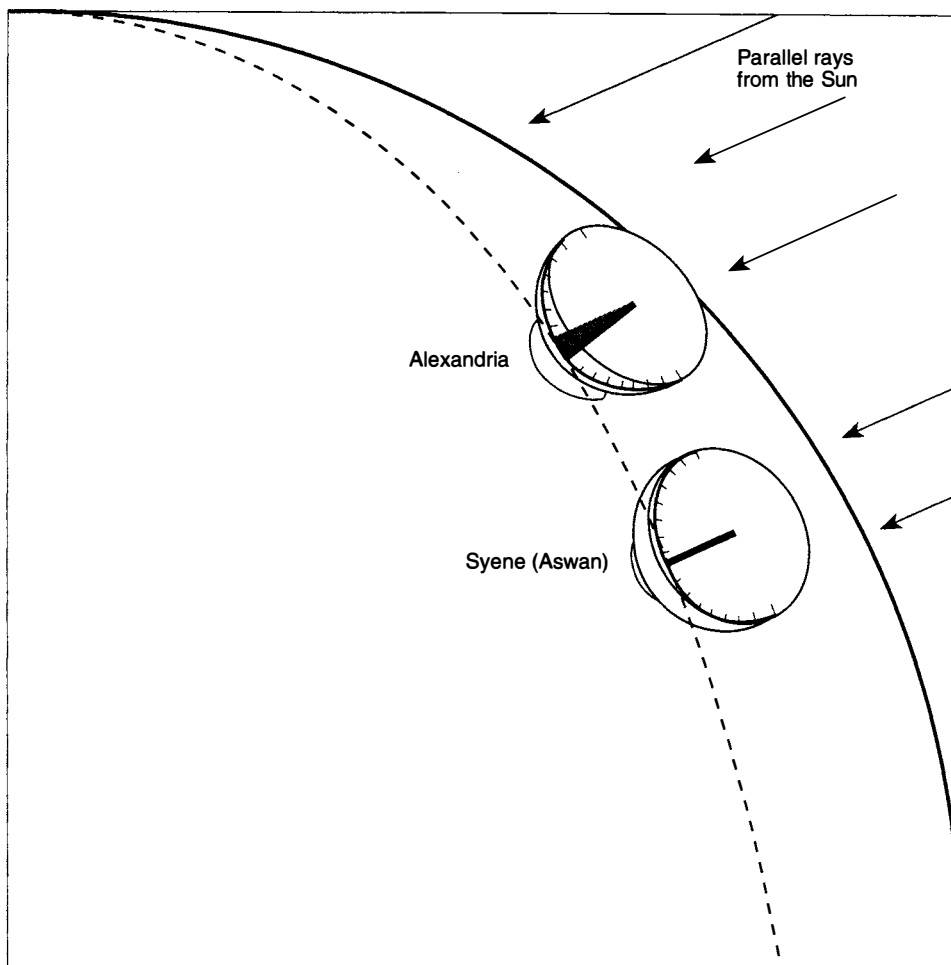


FIGURE 3

Eratosthenes' method for measuring the size of the Earth

In the Third Century B.C., Eratosthenes measured the circumference of the Earth with an accuracy of about 50 miles, even though nobody would see the curvature of the Earth until 2,200 years later. In this illustration of his method, two hemispherical sundials are placed on approximately a meridian circle, in Alexandria and Syene (Aswan), at noon on the day of the summer solstice. The gnomon in the center of each sundial is constructed to be the same length as the radius of the hemisphere; it points straight to the center of the Earth. Eratosthenes found that the gnomon made no shadow in Syene, but a shadow of 7.2° in Alexandria. He also knew the distance between the two cities to be about 490 miles. This allowed him to calculate that the Earth's circumference is about 24,500 miles.

sider the approximate measurement of the distance between the Earth and the Moon, by Eratosthenes, and others, when no man had seen that distance with his senses. These examples each and all typify the fact that every scientific discovery of principle, from before Thales, through to the present time, involves the generation of an *idea*, in Plato's sense of "idea," an idea which is derived from anti-Aristotelean, *anti-empiricist* cognition of an anomaly among sense-perceptions, which contradicts naive sense-perception. All scientific ideas, and the crucial ideas of Classical forms of art, are of this Platonic quality.

The principles of political-economy are of this efficient quality. By "efficient," one should signify that these are ideas which are the cause of mankind's increase of society's power over nature, per capita, per household, and per unit-area of land employed. It is these ideas which are the efficient agency through which the average productive powers of labor are increased. This is the efficient means, by which the output of human activity of societies as a whole exceeds the input required to generate and sustain that activity. This is the source of not-entropy in economy, the source of sustainable, and also rising rates of "macro-economic" profit.

Education and profit

The secret of the great advance in society which erupted during Europe's Fifteenth Century, is that impulse toward universal education typified by the Brotherhood of the Common Life, and adopted by Louis XI's France as a cornerstone-policy of the modern sovereign nation-state. This achievement was based not upon the goal of making just any form of education universal, but, rather, what is known among scholars as the Classical-humanist mode of education, as best typified by the policies of Friedrich Schiller and his follower, Prussia's famous education minister, Wilhelm von Humboldt. The Humboldt model of gymnasium as a secondary institution, is the best example of the kind of policy of universal education required for a future citizen of a prosperous modern sovereign nation-state republic. At this point in our presentation, the most crucial features of that educational policy, as they bear upon the product of profit, may be stated briefly, as follows.

We begin with the direct impact of scientific progress upon the "macro-economic" profitability of national economies. After that, we identify the relevance of education in Classical art-forms to the same effect.

The principles of a Classical-humanist form of scientific education are summarized as follows. The distinction of this form of science-education, is that it demands that currently prevalent “textbook” and other “blab-school” methods of education be abandoned, in favor of the proposition, that the pupil has no actual knowledge, except to the degree that the pupil has reexperienced the act of an original scientific or artistic discovery of principle, within his or her own mental processes. The function of the teachers is to prepare the pupils for each such experience, within a succession of such experiences, which may be fairly described as arranged in the sequence of “necessary predecessor,” “necessary successor.”

In the language of formal mathematical physics, the state of consistent knowledge, prior to discovery of a superior principle, is represented by an open-ended theorem-lattice. That lattice is premised upon a set of stated or implied formal axioms, which, taken as an integrated set, constitute what Plato defines as an *hypothesis*. The validated, newly discovered, higher principle, defines a new, relatively superior *hypothesis*. No theorem of the first hypothesis is consistent with any theorem of the second hypothesis; this formal inconsistency is otherwise recognizable as a *singularity* of the general form otherwise associated with a “mathematical discontinuity.” That singularity, which is of the smallest possible non-zero magnitude, corresponds to the event which causes the supersession of the first by the second hypothesis, the mental-creative act of both the original discovery, and the replication of that original act of discovery by the pupil.

The realized benefit of rudimentary competence in mathematics (for example) achieved by means of successive replications of original discoveries of principle, is the ability to think “transfinitely.”²² Instead of thinking of the elements of a theorem-lattice, or kindred array of many elements, one at a time, in sequence: One learns to think implicitly, and efficiently, of the entire, open-ended array, by thinking of the hypothesis which underlies the existence of all possible members of that array. It may be fairly said, that that pupil has made the initial transition to thinking “axiomatically.”

Through the successive replication of original discoveries in that way, the pupil acquires a still-higher level of knowledge, above the level of simply “thinking axiomatically.” Through this kind of mental experience, repeated many times, the pupil is confronted with the fact, that underlying a succession of demonstrably valid historical discoveries of principle, there is an associated, implied *method of discovery*, corresponding to Plato’s notion of an *higher hypothesis*. This is the level of thinking which Johannes Kepler, for example, identifies by his notion of a governing principle of *Reason* in the laws of the universe.²³

22. This is the sense of “transfinite” employed by Georg Cantor.

23. As distinct from the Sarpi-Galileo-Newton notion of mechanical “causality.” See Lyndon H. LaRouche, Jr., “The Fraud of Algebraic Causality,” *Fidelio*, Winter 1994.

This acquired level of transfinite thinking²⁴ which enables the pupil to render intelligible the notion of localized process-interaction among different axiomatic systems, is the level required for making intelligible the crucial characteristics of modern economies, or for rendering comprehensible an historical process of revolutionary scientific discoveries of principle.

To the degree that the action of thought of an individual person incorporates an accumulation of a relatively greater number of axiomatic-revolutionary discoveries, we may say that the density of discontinuities per interval of action is increased. This is not merely verbal action, but also efficient action by the individual upon nature, and so forth. These phenomena are located in the Platonic quality of non-empiricist “ideas,” within such ideas as “efficient ideas.”

The accumulation of knowledge in this form, through all of the many things which are transmitted to the infant and child as a “cultural heritage,” is the correlative of those increases in mankind’s potential relative population-density which set the individual member of the human species absolutely apart from, and absolutely above the members of all other species. This is the quality which is responsible for the increase of the human population, and its demographic parameters of life-expectancy, health, and productivity, orders of magnitude above the “aboriginal food-gathering” potential attributable to higher apes.

This notion of increase of the density of such discontinuities per interval of mental action, is the formal correlative of the not-entropy of political economy. This is the source of “macro-economic” profit. This is the origin of the capability of the ratio of “free energy” to “energy of the system,” to remain constant or to rise, while the “energy of the system,” per capita, per household, and per unit of land-area utilized, increases.

The origin of this benefit is not limited to science education, or any part of education as such, but, nonetheless, Classical-humanist education, as we have described it here, thus far, is paradigmatic of all of those developments within society which bring about the desired, not-entropic result. It is the increase of the ration of the educated strata of society, from less than 5% of the population, in the direction of universal, Classical-humanist modes of education of the young, which accounts both for the explosion of growth of productivity, and for the general improvement in the condition of humanity, unleashed by the Fifteenth-Century Council of Florence and Louis XI’s France.

As soon as the principle of “efficient knowledge” is formulated in such Classical-humanist terms, we ought to recognize, and quickly, that there is an inhering fraud in today’s popular use of the terms “objective science” and “scientific

24. This higher quality of “transfiniteness,” is what Georg Cantor associates with Plato’s notion of a *Becoming*, as distinct from the higher ontological state of Cantor’s *Absolute* or Plato’s *Good*.

objectivity.” Those uses of “objective” flow from Aristotle and his co-religionists among the modern materialists, empiricists, and positivists.²⁵ They signify acceptance of the popularized delusion, that valid ideas are limited to the objects one may presume to be reflected as sense-perceptions. The fact—the relevant anomaly—is, that were science “objective” in the sense the materialists and empiricists prescribe, the living human population of this planet never would have exceeded the several millions individuals imputable to an “aboriginal” collection of ape-like food-gatherers.

The case of Classical-humanist science-education underlines the fact that valid scientific knowledge is essentially subjective. Science pertains to those ideas which meet two essential requirements: that they are not reflections of sense-perceptions as such, but, rather, arise as creative solutions to stubborn anomalies in sense-perception; it is also required, secondly, that their superior efficiency is demonstrable in social practice. The general form of the latter requirement is, that the demographic characteristics of populations be improved, and that the potential relative population-density of mankind is implicitly increased, relative to the surface of our home planet. These ideas occur as products of a uniquely-human creative potential of the individual mind, and are governed by a still-higher quality of idea, above ordinary hypothesis, higher hypothesis, or scientific method.

The case for the Classical art-forms (poetry, drama, music, plastic fine arts), is of a related form. In art, the place of singularities in science education is taken by *metaphor*. The principles of creative discovery in Classical fine art are the same as for valid discovery of superior principles in science.

It is the combination of the two, Classical-humanist modes of scientific education, and Classical-humanist education in the fine arts, which defines the roundly developed young personality of a good modern culture, the suitable citizen of a sovereign nation-state republic.

It is the subjective qualities of developed powers of creative discovery in science and fine arts, which define both areas of knowledge: knowledge is not “objective”; it is “subjective.”

The essential lesson of the whole experience of modern European civilization, in both its rise, 1461-1963, and its recent slide toward collapse, 1964-95, is that the essential investment, upon which the “macro-economic” profitability, and even the bare survival of modern nations depends, is investment in the development and utilization of the creative powers of the individual person, as we have described that creativity summarily, here. There is no possible equilibrium-state in an economy; to maintain not-entropic progress of society, even its mere survival, the process of not-entropic development through the fruits of creative-mental discovery, must continue. Heraclitus observed, “Nothing is constant, but change.” “Change” is not-entropic development.

25. Is not atheism (or Thomas Huxley’s “agnosticism”) also a religion?

The interaction

Against the elements of background so arrayed, let us restate and analyze the crucial decision presently confronting the governments of the world’s nations today.

Beginning with tremors of a coming financial “mudslide,” in 1992, there has been a remorseless, hyperbolic growth in the numbers and severity of bankruptcies and near-bankruptcies associated with the threatened bursting of a global bubble of financial speculation in so-called “derivatives.”²⁶ By early 1995, the “mudslide” had become mammoth in scale, a global epidemic. The policy-question posed by the latter developments is fairly summed up by those now preparing their participation in the coming Halifax monetary conference: “It is a global epidemic! Does the collapse represent a set of administrative blunders, or is it a systemic crisis which augurs the early end of the international monetary system in its present institutional form?”

The answer is, the ongoing collapse is the onrush of an inevitable end of the present form of global monetary and financial system. No mere improvement in administration or administrative procedures would have any significant benefit. There is no solution, but that at least several leading governments take the initiative in putting the existing monetary system into financial-bankruptcy reorganization, to clear the way for the prompt establishment of a new international credit system, one based upon the precedent of the highly successful national banking established under the administration of U.S. President George Washington.

If that bankruptcy-reform is not made relatively soon, the existing system will disintegrate in a global echo of the 1922-23 disintegration of the monetary system of Weimar Germany. The “virus” which would then obliterate the present global monetary and financial order, was endemic to the system even before 1963. However, as the Franklin Roosevelt war-time mobilization demonstrated, as long as the potential for resuming net physical growth in the agro-industrial sectors of physical production existed, it were possible to revive a virtually comatose monetary and financial system, through the combined current and prediscountable, future real profits of agriculture, industry, and infrastructure-building.

From the standpoint of comparison to the 1931-45 U.S. economy, we have reached the present stage, at which no such recovery of the monetary and financial system would be possible: The difference is, for the greater part of 30 years, and emphatically the past 25, we have allowed the destruction of the nation’s physical-productive capacity and skilled labor-force to go much too far, for too long. The accumulated financial debts of the world could never be repaid under the existing system, or anything like it. To survive, we must scrap the sick system, and begin over once again.

26. See John Hoefle, “Derivatives: The Last Gasp of the Speculative Bubble,” *EIR*, April 14, 1995.

It will do our opponents no good to argue against this picture. Either the system will be reformed radically, in bankruptcy, along the lines I have indicated, or the system will disintegrate. There is no way in which the opponents of that radical reform could win the argument. Here, we are addressing a different aspect of the problem. "Objectively," as some might say, the successful reorganization of the world's economy is within reach; there is no technical reason it should not succeed, provided the indicated changes in axiomatic policies are made. The danger to be considered, is that, even after the dying present system has gone bankrupt, the mental habits—the axiomatic assumptions—associated with the departed system will persist. For that reason, it is of vital strategic interest to every nation of the world, the United States included, that the reputations of today's generally accepted university-classroom economics doctrines be destroyed.

In conclusion, therefore, we summarize the method of thinking about political-economy which must be rejected, and what must be affirmed in its place. The contrast between the Eighteenth Century's so-called "Robinson-Crusoe model," the linear, entropic method, as resurrected by John Von Neumann and Oskar Morgenstern for their 1943 **Theory of Games and Economic Behavior**²⁷, versus the scientific method exemplified by Bernhard Riemann's 1854 habilitation dissertation, "On the Hypotheses Which Underlie Geometry," which we referenced here, earlier.

As if emulating the opening chapters of Karl Marx's four-volume **Capital**, Von Neumann and Morgenstern introduce the fictional image of Robinson Crusoe and Friday, as the idealized "cell-form" of their entire system of economic values. There is nothing intrinsically human in Von Neumann's and Morgenstern's ideal economic man, barring such superficial aping as a bit of crude tool-making, barter, and casino gambling. There is no rational basis for the choices in the trade between Robinson and Friday; there are only varying relative intensities of desires. All is an n -person game involving m varieties of articles traded and consumed, in varying degrees of absolute or relative finitude: Begin with a two-person game, and proceed from there. Apparently, nothing is involved which can not be presented for mathematical solutions as a system of simultaneous linear inequalities. The system is intrinsically entropic.

Modern systems analysis is, arguably, conceptually cruder than many among its notable predecessors, but, in principle, it exemplifies all **Family #2** species. These entropic "models" are in stunning contrast to Riemann's principle of hypothesis, the principle which bears directly upon the crucial fact of physical economy.

Riemann's habilitation dissertation does not define a geometry in the ordinary sense. Rather, classroom Euclidean geometry is not a true reflection of the physical space-time

in which we live, nor is it a direct reflection of the evidence taken by our visual apparatus. Euclidean geometry is a construction of the naive imagination. In classroom Euclidean geometry, we merely imagine that space-time is extended without limit, and in perfect continuity, in the directions of backwards-forward, side-to-side, and up-down in space, and backwards-forwards in time: This is not true in vision, for example, in which space is harmonically ordered, and is not perfectly continuous in any sense of direction. Riemann addresses the point, that if we attempt to impose the results of validated discoveries in physics upon the Euclidean image of space-time, we are presented with some provocative, and very useful anomalies. This may be summed up in the following way, for our purposes here.

The human mind may imagine many things which we do not know from prior experience. Some of these imagined ideas prove to be states which can be discovered, or induced in nature; more cannot. The significant, valid imaginations of this sort are discoveries of the type which the referenced Eratosthenes experiment illustrates. They are discoveries of physical principle which contradict earlier conceptions of physical space-time, but which nonetheless prove to be valid. Discoveries of this type demand a change in hypothesis. The interesting thing to discover, then, is: What method of discovery (e.g., "Family" of discoveries) subsumes the relevant series of valid crucial discoveries of this valid type?

What then, is the result of the attempt to correct our notion of geometry in a way which reflects this notion? That is the general idea one should associate with the term "Riemannian geometries" in particular, or "non-Euclidean geometry" in general. This is the form of geometry which lies beyond the bounds of all ordinary notions of a formalist mathematics; this is the appropriate geometry for a valid idea of "physical space-time." This is the appropriate geometry for representing the physical-space-time of a not-entropic physical-economic process.

In this physical-economic "geometry," our attention is focussed upon the interaction of physical-economic processes which are defined as axiomatically mutually exclusive: a succession of interacting economic "geometries" which act upon one another in such a fashion as to raise the state of the subject economy from a relatively lower to a relatively higher degree of not-entropy. The paradigm for this interaction is the Classical-humanist method in education: the development, in the individual, of the creative power for assimilating and generating (Platonic qualities of) ideas which represent valid creative discoveries of physical and artistic principle. It is the transmission of those ideas, in that manner, which is the concrete form of the interaction to which we have just referred here: It is called otherwise, the fostering of scientific and artistic progress in both the generation and efficient assimilation to practice of valid discoveries of higher principle.

The difference is: It is no mere epiphenomenon of bad metaphysics: It is real, and intelligibly so.

27. Third edition (Princeton, N.J.: Princeton University Press, 1953).