

How to tell the future

by Lyndon H. LaRouche, Jr.

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Forget the faked market statistics. The past week's reports of the troubles afflicting leading Swiss banks, have crushed the previously lingering hopes among the professionals, that the onrushing, global financial crash which I have forecast might still be prevented.

Compulsive gamblers and all other desperately wishful fools aside, the past two weeks insiders' reports, have shown, that serious market analysts are worrying less about the market, than what happens to their personal physical security, when it might be the turn of some fellow in their office to uncork a wild shooting spree.

Consider some typical facts. First, the British monarchy, which presently dominates more than ninety percent of the world's present, international financial system, has announced internal military-security plans, its operation "Surety," anticipating a violent social crisis expected for the United Kingdom during the period from September 9, 1999, through the end of the year. Meanwhile, an international conference of psychiatrists, meeting in Hamburg, Germany, this past week, examined the deadly mental-health problems lurking, too often unsuspected, among people speculating in the world's financial markets.¹

Around the world, the warning-signs are abundant. The Japan "yen carry trade," which was a key factor in the August-

1. The World Conference of Psychiatrists, meeting in Hamburg, Germany in mid-August, discussed the "Irrationality of the Stock Market Mania" as part of its official proceedings. See also, Lyndon H. LaRouche, Jr., "Star Wars and Littleton," *EIR*, July 2, 1999.

October 1998 near-meltdown of the world's financial system, is, once again, a bubble near the bursting-point. Now, the "gold carry trade," launched just this past Spring, has joined the "yen carry trade," among notable motives for panic in relevant financier circles. The "Euro," which had been collapsing in price since it was launched, at the beginning of 1999, is being propped up by the money fleeing into Europe from the U.S.A. That recent flight of investments out of the

U.S., was encouraged by talk of a much feared, upcoming Wall Street financial collapse, which many financial analysts are say-

ing, openly, may reach levels of between 25% and 40%, or more, below current prices.²

Given the present level of collapse in the general moral quality of the U.S. and European populations, in particular, over the course of the recent decades, there is a great likelihood, that under the kinds of sudden financial crises and their effects which we must expect now, there will be sudden eruptions of both spontaneous and orchestrated forms of extreme, homicidal violence, by individuals and mobs of various sorts. Wiser minds say, "Forget the financial system; it's almost as good as gone. Worry about what happens when the financial system goes under, and that very soon."

Meanwhile, all of the key physical measures of foreign trade balances, production, and per-capita market-basket physical income of the U.S. economy, and those of the rest of the Americas, Africa, and Europe, are down—way down by comparison with 1987-1989, and also with the 1970s. The

2. Other, circumstantially confirmed operations have used such sources of encouragement to attempt to fix the value of the Euro, somewhat upward, at a desired short-term level.

Feature

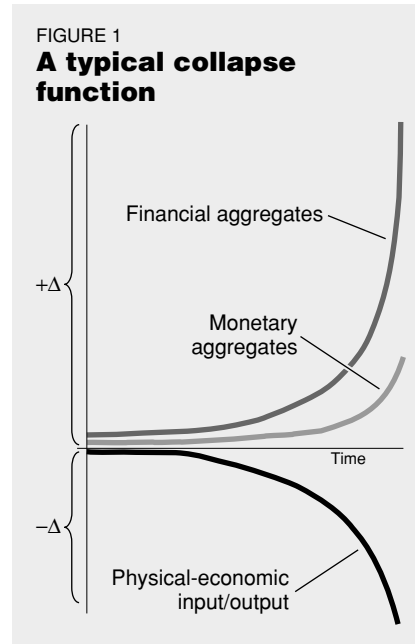
looting of the physical assets of basic economic infrastructure, farms, factories, and net savings of households, in a desperate effort of financial interests to keep the financial bubble from collapsing, has brought these looted sectors of the real economy, way, way down, and falling rapidly.

Forget the lying statistics fabricated and issued by certain Federal Reserve System, U.S. Government, and like sources. Behind the faked figures, the real data, on both financial markets and the real economy, are not only down, down, down, but represent the period since February 1999 as the deepest down-turn of the 1990s so far. Look at the increasing spread between discount-rates on corporate and U.S. Treasury bonds, for example, to understand why leading financial institutions' reading of the real figures—not the faked statistics admired by the *Wall Street Journal*—has the top circles trembling in fear.

Do not be duped by the recent, cultish “millennium bug” side-show, the so-called “Y2K” panic. I always regarded Cobol as a costly folly, even back during the early 1960s, but that is not the cause of any danger to the world financial system come January 1, 2000. The reason a mountain—a virtual Mount Everest—of cheap credit is being built up for the last four months of 1999, is not “Y2K.” The carefully cultivated rumor, that this credit build-up is for “Y2K” problems, is simply a cover-up of the fact, that this build-up of a tidal wave of cheap, “printing press” money for the coming months, is actually in anticipation of a coming, global financial blow-out which is already a rotten-ripe potential of the existing world financial system. The only situation which might possibly occur, which would require financial bail-outs on the scale of the emergency funding now announced, would be the biggest financial crash in history, occurring before the end of this year.

The collapse in the real economy of nations—their physical economy, is to be seen as my “Triple Curve” depicts the characteristic feature of the post-1971 world economy [Figure 1]. In net effect, the real economy, the physical economy, of most of the world's area, has been looted at increasing rates, looted to feed a cancer-like financial sector.

That looting, is the means on which the continued existence of the present financial system depends. That diseased financial system, is a cancer feeding on the real economy, consuming that body, in its desperate effort to support the world's post-1971 “floating exchange-rate monetary sys-



tem.” During the past two decades, as the world's real economy has been looted, more and more, to feed that financial cancer, the world's financial system has been characterized by a financial fever of combined austerity measures, junk bond plunderings, endless, “Woodstock-style” orgies of hedge-fund gambling, and sundry forms of predatory mergers and acquisitions.

Thus, in the U.S.A., the recent soaring of the Wall Street Dow-Jones Index and growth of mutual funds, for example, is not to be seen as a sign of prosperity, but directly the opposite. This so-called “boom”—in financial-asset-price hyperinflation—is actually the highly elevated fever that signals, and will bring about the financial system's approaching collapse and death, a sickness which has been named by Federal Reserve Chairman Alan Greenspan as “irrational exuberance,” which Germany's former Chancellor Helmut Schmidt has recently described, more simply and appropriately, as psychotic behavior of the marketeers.³

Now, this past week, the announcement of major losses by leading Swiss banks, answers the question, “Where can I put my money for safety.” Now, the answer seems to be, “Nowhere.”⁴ The big and smart money has already been en-

3. In an interview with *Welt am Sonntag* published on Aug. 1, Helmut Schmidt said, “Presently, many people are enthusiastic about the United States. But these people do not realize that the stock market boom is totally over-valued, and that there are psychopaths who are driving the stocks upward. It is only a question of time for the boom to come to an end, and for stock values to go down the hill—just as it happened in Japan.”

4. Rumors are flying of huge derivatives losses by the Union Bank of Switzerland and *Crédit Suisse*, wrote Zürich-based financial expert Heinz Brestel in an editorial in the German daily *Frankfurter Allgemeine Zeitung* on Aug. 12. According to these rumors, which resulted in sharp declines of UBS and

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gaged for some time, in a panicked effort to transform itself into gold and other physical assets of types expected to outlive the coming financial meltdown.

The urgent questions now, are only three. 1) How shall we keep the world's economic system—its real economy, its physical economy—functioning, under the condition that the financial systems of western Europe and the Americas are hopelessly bankrupt? 2) What radical changes must now be made, and that very quickly, to create a new monetary and financial system, and launch a genuine economic recovery? 3) From whom shall such urgently needed, expert advice come? Who has a proven record of competence on such economic issues?

In answer to all three of these questions, the following must be said.

Although there have been, and are other intelligent economists, the only statistically proven, scientific method of long-range economic forecasting is my own LaRouche-Riemann Method. The importance of this fact is shown by the evidence, that, even today, when the present world financial system is about to go over the cliff, there are still those, even among professional economists, who have come now to recognize, that the world's financial system is at the brink of new threats of "meltdown," but who, nonetheless, refuse, even now, to accept the most critical evidence as to the root-nature and causes of the presently ongoing, hyperinflationary mode of the monetary-financial collapse.

Like the Miniver Cheevy of Confederacy buff Teddy Roosevelt's favorite poem, these erring economists have their "reasons," as we shall point out here.

The issue today, goes way beyond, "Which economists made the best predictions—and, also, which, like Vice-President Al Gore, the worst."⁵

Even when, during the months just ahead, the now inevitable collapse is being entered into the future history books, there will still be those, including many of today's leading names in the teaching of economics, who still raise their same old objection to my forecasts, this time to my proposed recovery program. They will base that continuing objection on the same old shopworn delusions, which have been the source of the time-worn incompetence of their past objections to my repeatedly confirmed forecast of the ongoing crash-trend. Up to this point, but for relatively rare exceptions, virtually all academic economists and governments have thus shown

CS stock prices on Aug. 10, the two biggest Swiss banks suffered from the dramatic increase of bond yields in recent months, and lost several billion dollars due to speculative transactions at the Cayman Islands.

Although the report was denied by representatives for the UBS, Crédit Suisse-First Boston, in deep trouble with its Japan operations, declined to affirm or deny. *EIR* sources affirmed the rumored "hit" suffered by Switzerland's banks to be true.

5. On the record, Al Gore ranks with the absolutely worst, most illiterate personalities in matters of economic forecasting. Poor Al can not even predict past events competently.

themselves to have been consistently wrong, not only in their forecasts, but, more importantly, in their incompetent definition of the way in which a modern economy functions.

Now, when the onrushing doom of the present world's financial system has become undeniable by all but those persons driven mad by this reality, the continuing issue will take a new form. Now, sane people will ask, "What is the correct *method* for forecasting, *either* a general financial crash, or an economic recovery from that crash?" I answer that question as follows.

1. What can we forecast?

Re-phrase the previous question: To what degree can economists—any economists—foretell the future? Can we expect that anyone could make a simple, unqualified, rational form of prediction, that a certain price will reach a certain exact level on a certain date?

The answer to that question is, "Mere accidents aside, obviously not." To at least a certain degree, human intervention can, within certain limits, willfully nullify any such unqualified prediction. Powerful governments can intervene to such effect. Those powerful financial agencies, which rig what is called, most curiously, the present-day "free market," rig prices of markets—and also governments—as their customary way of—for example—making a profit on price-speculation in so-called "futures markets."

Nonetheless, there have repeatedly been cases in which some people have accurately forecast financial collapses, as I have forecast the presently ongoing one. After each such forecasted crash, in my own and other confirmed forecasts, it has been shown, not only that the crash occurred as some economists had repeatedly forecast, but, also, that the crash was either caused, or, more often, merely triggered, by more or less exactly the factors on which the forecaster had based his earlier, qualified warnings.⁶

Nonetheless, despite such evidence of the precedents for the presently onrushing financial crash, such as the examples of the Seventeenth-Century tulip bubble, or the early Eighteenth-Century John Law-style bubbles, there are some wild-eyed liberals and other mystics, who insist, still today, that if the market is kept as free as the Mont Pelerin Society's dogma of "the invisible hand" demands, everything will ultimately work out for the best, in exactly such unknowably wonderful ways, as those which snake-oil peddler Adam Smith insisted,

6. The case of J.M. Keynes warning against the outcome of the policies adopted by the predatory victors at the Versailles conference, in his *The Economic Consequences of the Peace* (New York: Harcourt, Brace and Howe, 1920), is a useful example. Today, even economists with whom I disagree fundamentally, as I do with Keynes, may happen to draw sound conclusions about some of the medium- to long-term consequences of a bad policy.

exist only in some magical domain, beyond human comprehension.⁷

Yet, despite those wild-eyed believers in the greedy little god of “the invisible hand,” each of my long-range forecasts, since the beginning of the 1960s, has been right exactly to the degree of precision which I have claimed for it. Then, if I am right in my method of long-term forecasting, as I have been so far, and if all economists who opposed me have been wrong, as they have been so far, can we assume, from that evidence alone, that my policies can forecast an economic recovery, and that the policies of my political opponents can not?

You answer that question: “Not necessarily so,” and you are right to say so. Too many people are taken in by their own irrational faith in so-called experts. Credulous people look at experts as a child looks at a milk-cow. The cow produces milk by means which the child regards as more or less magical.⁸ The cow is, for that child, an “expert” at producing milk. Most adults, like those children, look at the economics profession in a similarly irrational, more or less superstitious way, as secreting “expert” advice in the manner a cow produces milk. Superstitious people depend upon their faith in such experts, whether those supposed experts are competent or not.

You are right to insist, that other evidence, other than the simple fact that I have been proven expert in correctly forecasting such past developments, would be required to make my case. I summarize that other evidence here.

Successful forecasting is not so simple that it would allow us to make a bare, unqualified prediction. Nonetheless, there is a direct connection between the way I have successfully forecast the most important such crises of the past nearly thirty-five years,⁹ and the way in which I am prepared to forecast the general direction of the happy results of the global monetary reform which I have named “a New Bretton Woods” system. When those facts are considered, my past successes do point toward the evidence which supports my argument for the way an economic recovery may be organized, even now.

The first fact to consider, is that *I have never simply “predicted” an event. I am no witch. I have always specified the qualified conditions under which a certain type of event was almost certain to occur, or not occur.* The source of the at-

7. Actually, as Al Gore’s Wall Street financial backers could reveal to you, the only “invisible hand” in the U.S. economy, is Wall Street’s hand, in your pocket. Adam Smith’s (and Al Gore’s) kookish definition of the “invisible hand,” is to be found in his 1759 *The Theory of the Moral Sentiments*. From no later than 1763, Adam Smith was a lackey of Lord Shelburne, a member of the same stable of East India Company lackeys as Shelburne’s Jeremy Bentham.

8. Of course, that child is a marvel of sanity when compared with the housewife, or others, who insist that it is the “free market,” rather than the farm, which produces milk.

9. Since the British monetary devaluation of November 1967 and the dollar devaluation of March 1968.

tempts to deprecate my forecasts, has usually been the obviously fraudulent way in which my would-be detractors have attempted to misrepresent my forecasts. I have always insisted, “Unless we change the presently prevailing policies in the following way, we are now approaching the following event as early as . . .” The self-styled “critic” usually became extremely agitated at that point, insisting that I predict a certain event as of a certain date, *whether the presently prevailing policy-trends, on which my forecast was based, were changed, or not.* In other words, the fraudulent argument of that would-be detractor, was his insistence that I practice magic, not scientific forecasting. That fraud has been typical of them.

All those defenders of so-called “liberal economics” insisted, that programs of deregulation, “free trade,” and “globalization,” would ensure a successful economy. They even insisted that a growth of the financial cancer, such as a rise in the Dow-Jones index, is a sign of healthy prosperity. The onrushing financial debacle has proven them all so terribly wrong on those points.

The second, related fraud from such quarters, has been the sophistry, “If you are right, then why do almost no economists agree with you?” My answer to that paralogism, is simple: “If the doctrines of all the most influential economists, to whom you refer, were not, not only incompetent, but indeed radically in error, the world’s economy, which has been shaped by their advice, would not be in the desperate mess it is in today.”

For example, remember, that I forecast, repeatedly, beginning the end of the 1950s, that, *if the world’s policy-shaping trends of the 1950s were continued into the middle of the 1960s, the last half of the 1960s would experience a series of monetary crises, leading into a crash of the then-existing world monetary system. Those global trends, which I had pinpointed by my studies of the economic policy-shaping of the 1953-1961 Eisenhower years, were continued as long-term trends, throughout most of the 1960s, with the resulting November 1967 collapse of the British pound, and the March 1968 collapse of the U.S. dollar. Those crises, and the Penn-Central, Chrysler panic of 1970, were followed by the breakdown of the entire post-war, Bretton Woods monetary system in mid-August 1971.*

That is typical of what I mean by the term “long-term forecasting.”¹⁰

Note, that the reason my 1960-1971 forecast succeeded as it did, was that, even with the brief improvements in U.S. policy under President John F. Kennedy, the long-term trends of the 1960s were, overall, those I had adduced from the policy-trends of the 1954-1961 interval.

10. Generally, in my usages, a short-term forecast is for a lapse of time of up to two years, usually one year or less. A medium-term forecast covers a period of not less than three to five years. A long-term forecast usually signifies a lapse of time of not less than seven years, and may include a period of up to thirty or more years.

Recall, if you are young enough to have remembered, that, until mid-August 1971, virtually every academic economist teaching in U.S. universities had absolutely insisted that the so-called “built-in stabilizers” of the system made such a crash impossible. The irony of their folly was, that the so-called “built-in stabilizers” of the post-World War II IMF system had been the tough regulatory measures instituted under Franklin Roosevelt’s “New Deal” and the pre-1958 phase of the post-war international monetary order. It was precisely those most essential “built-in stabilizers,” which these economists were insisting be gutted.

Of course, then as now, there were also those witless gossips, who taught that financial crashes occur only because some people “talk us into one.” So much for the kookish variety of Economics 101 taught to virtually every university student of the recent forty and more years!

Remember, if you are old enough to do so, that within the weeks immediately following the August 1971 break-up of the old Bretton Woods system, I issued a new long-term forecast, issued under the title of “Depression Ahead?” I warned that, *if the new trends set up by President Nixon’s foolish decision, the combination of austerity measures and a “floating exchange-rate monetary system,” were the continued standards for policy-shaping*, the world economy, in its present, new, post-1971 form, would pass through a series of crises leading toward disintegration of the system as a whole. I indicated the causes underlying such a long-range forecast, by pointing to the role of the physical economy—the real economy—often more hidden than revealed by the published statistical portrait of the money economy.

That view of the policy-conflict between real economy—physical economy—and post-1971 monetary and financial policy, is now demonstrated fully to have been a correct assessment of what has happened over the subsequent nearly thirty years. That is the proverbial “bottom line” for what is happening now.

The lesson to be learned from those and my other successes in long-range forecasting, is, that *the ability to forecast long-range economic trends, depends upon a correct identification of the set of definitions, axioms, and postulates, which underlie the way in which successive, even radical changes in policy-making will be shaped over the relevant period ahead.* The only cause for the cyclical forms of financial crashes, is that influential people swindle governments, other economic institutions, and the population more widely, into blind faith in a certain “generally accepted” set of definitions, axioms, and postulates, a set of axiomatics which is, in fact, not only false, but, ultimately, more or less fatally so.

For example: The interrelated dogmas of “free trade” and “the invisible hand” are outrightly superstitious, anti-scientific dogmas, based on nothing but a combination of cheap parlor tricks and blind faith. The reason most people refuse to recognize that present trends in policy-making are leading toward a foreseeable crisis over the long-term, is that they

refuse to recognize that their own beliefs are wishful self-delusions, rooted in false opinions about what they believe, and wish policy ought to be.

The only remedy for such an economic catastrophe, such as the presently ongoing doom of the world’s present financial system, is to dump the existing set of “generally accepted” axiomatic assumptions, and adopt an appropriate new one. It is the refusal of institutionalized opinion to recognize a wrong prevailing policy, a wrong generally accepted opinion, which causes a society to continue travelling down the road to some awful new crisis, and it is through the tragic insistence of that opinion, that we must continue that misguided belief, that generally accepted opinion destroys entire nations, or nearly so.

Here, I shall show you how that works. Once you have understood the proof of the point I have just made, you will know the gist of the way in which successful economic forecasting works.

I shall address this proposition on two levels. First, I shall describe the problem of defining the physical principles involved in constructing a forecast. Second, I shall explain why it is not sufficient to consider only those physical principles. One must also focus upon the political-cultural factors which will cause societies to continue to cling to opinions which will, alternately, save them, or ruin them, the latter option almost up to the very end, or beyond.

A lesson from geometry

Ancient and modern witch-doctors’ reading of animal entrails, Professor Milton Friedman, and ouija boards put aside, modern civilization inherited the idea of a rational kind of economic forecasting from physical science.

The scientific forecasting of any kind of future physical events, began in prehistoric times, with the construction of solar-astronomical calendars, and with the use of related methods for transoceanic and related navigation. As you might observe simply by reading an ancient design of the Zodiac, what such ancient astronomers and navigators observed, was the regularity of changes in positions which could be measured, not as straight-line connections, but as angular movements.

Those ideas of forecasting, which we have from such earlier historic societies as the Vedic calendars of Central Asia, the astronomy of Egypt, and the ancient, pre-Roman, Greek and Hellenistic astronomers and navigators, are the point of origin for the notion of *universal physical laws* which extended European civilization has inherited, and developed still further, up to the present day.

Never let sophists’ tricks mislead you into overlooking the obvious. What does angular measurement in astronomy and navigation mean? It means that even the earliest stages of physical science began with the notion, that the laws of the universe describe the lawful distance between two observed points *in physical space-time*, as an *intrinsically* curved path-

way, not that straight-line pathway proposed by such fellows as Paolo Sarpi's personal household lackey Galileo Galilei, or by Abbot Antonio Conti's "Trilby" Isaac Newton.¹¹ In other words, a curved orbital pathway of a planet, moon, or comet, is not the result of forces acting along straight lines, at a distance. Regular orbital pathways are the result of the fact, first proved empirically by Kepler, and later by Carl Gauss, that physical space-time itself is intrinsically curved, and that each orbit is defined by its own specific, inherently curved, orbital characteristic of the Kepler-Leibniz-Gauss-Riemann type.¹²

The ancient Greeks, such as Plato, defined the physical universe in terms of spherical action, rather than straight-line pathways.¹³ Cardinal Nicholas of Cusa founded modern experimental physical science on an elementary fresh proof of that point, using geometry.¹⁴ After Nicholas of Cusa, Kepler was the next modern thinker who revived the ancient, pre-Roman, Greek civilization's knowledge, that the Earth orbited the Sun.¹⁵ On such premises, Kepler founded the first modern mathematical physics on the evidence which confirmed Plato's *Timaeus*. After Kepler's proofs for the Solar System, Huyghens, Leibniz, Bernoulli, Gauss, Riemann, et al., defined regular lawful action in our universe on the basis of regular action of non-constant curvature — and not as straight-line action, not as Galileo and Newton defined "action at a distance."

Thus, when these and related, most crucial facts of the history of physical science are taken into account, we must agree that the usual way most European classrooms today teach Classical Euclidean geometry is fraudulent in effect,

11. The correspondence of Galileo refers explicitly to the fact that Galileo's ideas about science were those given to him, by personal instruction of the powerful Venetian Paolo Sarpi, who employed Galileo as a lackey of his personal household. It was the same Sarpi who used England's Sir Francis Bacon as one of his agents, and the same Galileo who educated Bacon's intimate Thomas Hobbes in mathematics. Newton was elevated from relative obscurity by the intervention of the Paris-based, powerful agent of Venice, Abbot Antonio Conti. It was Conti, acting through a Europe-wide network of his controlled assets, such as Dr. Samuel Clarke and Voltaire, who created the Eighteenth-Century myth of Isaac Newton.

12. This is the Kepler-Gauss-Riemann notion which Albert Einstein adopted as a point of reference for his own later, more refined notions of General Relativity in a Riemannian form of physical space-time which is "self-bounded."

13. See Plato's treatment of the Platonic Solids, in his *Timaeus*, in *Plato: Vol. IX*, Loeb Classical Library (Cambridge, Mass.: Harvard University Press, 1975).

14. *De docta ignorantia (On Learned Ignorance)*, trans. by Jasper Hopkins as *Nicholas of Cusa on Learned Ignorance* (Minneapolis: Arthur M. Banning Press, 1985). Cusa's exposure of a crucial error in Archimedes' method for defining the ratio of the perimeter of a circle to the circle's diameter, thus defined regular action in the universe in terms of regular curvature, rather than straight-line connections.

15. Johannes Kepler emphasized his crucial indebtedness to the scientific discoveries of Nicholas of Cusa, and to the students of Cusa's founding of modern science, Luca Pacioli and Leonardo da Vinci.



A Hellenistic Greek astronomer in Alexandria, Egypt, in the Second Century B.C. "The principled notion," writes LaRouche, "that man's increase of power in the universe is orderable, is defined in respect to the 'clock' provided by regular curvature in astronomical processes."

even when such bad instruction is negligent, rather than intentionally a hoax. Most recent decades' classrooms have taught Euclid in ways which were directly contrary to the basis on which the ancient Greeks developed Euclidean geometry, the latter which was the same basis used by Plato and such successors of Plato as Eratosthenes. Today's commonplace falsification of Euclid was done in the effort to make it appear that Euclidean geometry agreed with what are called the "radically reductionist" doctrines of such fellows as Aristotle, Galileo, Descartes, and Newton, rather than the most crucial empirical evidence of both known ancient and modern physical science.

In the passing century's U.S. secondary and university classrooms, for example, Euclid was usually mistaught in ways intended to suggest, as most generally accepted classroom mathematics does, that one must accept as given, a set of definitions of space and time implied by the fraudulent assumption defended by caught-out hoaxster Maupertuis and his defender, Euler, that the shortest distance in physical space-time is along what most classroom teaching of Euclid-

ean geometry defines for the simple-minded as a straight line. That same, false, but generally accepted classroom mathematics, is the basis upon which all incompetent forms of statistical economic forecasting have been based, up to the present time.

Competent modern physical science rejects absolutely the widely taught misrepresentation of the Leibniz calculus, the linear fallacy presented to credulous students as the “limit theorem” of the celebrated hoaxster Augustin Cauchy. This is the same fraud introduced by such earlier hoaxsters as Galileo Galilei, René Descartes, Isaac Newton, Leonhard Euler, et al. The same hoax was defended even by a modern physicist as famous as Professor Felix Klein, in Klein’s exaggerated claims for the work of Euler, Hermite, and Lindemann respecting the definition of the so-called transcendental. All of these fallacious systems are based upon the assumption that all physical relations in the universe can be ultimately derived, mathematically, from the absurd assumption that the straight line is the pathway of least action in physical space-time.

Not only are linear systems false, in and of themselves. Such beliefs as Cauchy’s widely taught, radically linearized version of the taught calculus, also act as very efficient delusions. In their character as not merely misled persons’ wrong beliefs, but vicious, systemic delusions, they not only uphold false beliefs, but blind the victims of such delusions, such as the followers of Bertand Russell and his clones Norbert Wiener and John von Neumann, to the most elementary principles of scientific progress, including those of competent mathematical forms of long-range economic forecasting.

It is in precisely this area of scientific method, that the supposed secrets of successful long-range economic forecasting lie. This is even more true for forecasting of successful designs for economic recoveries and growth, than it is indispensable for understanding the causes of crises such as the presently unfolding one.

By “scientific work,” including the work of long-range economic forecasting, one signifies a body of knowledge premised upon a process of discovery of ever more, experimentally validatable, universal physical principles. This signifies not only the process of discovery of such validatable principles, but a view of that willful relationship of mankind to the universe as a whole, which is based upon the methods by means of which such discoveries of universal principle have been generated, up to any present time.

In effect, a linear mathematical view of physical science suppresses the most crucial features of the work of physical science, the work of discovering and validating universal physical principles. Once one understands this issue, and only then, is it possible to understand the deep reasons for my relatively unique success as a long-term forecaster.

Faiths contrary to reason

As Bernhard Riemann emphasizes the crucial point, in the opening of his celebrated 1854 habilitation dissertation. In

Europe until that time, the teaching and practice of geometry were based on purely arbitrary, axiomatic assumptions concerning the meaning of the terms space, time, and matter. These false assumptions were defined as *a priori*, or “self-evident” definitions and axioms, arbitrary assumptions, such as those of Immanuel Kant’s series of *Critiques*, customarily superimposed upon reality, rather than derived from it.

For our purposes here, these false assumptions, such as those of both Kant and G.W.F. Hegel, are fairly classified under the heading of “faiths contrary to reason.” What I shall describe in the following paragraphs may shock you, but understanding those several points will enable you to understand why relatively few practicing economists have been effective long-range forecasters.

The fatally flawed, relatively popular method, which is derived from blind faith in such axiomatic assumptions, locates observed phenomena within a purely fictitious domain of space, time, and matter, as that conjectured domain is defined by the purely arbitrary, straight-line definitions and axioms of a generally accepted classroom version of geometry in particular, and of mathematics more broadly. To the degree that the relatively more popular classroom methods of mathematical argument (e.g., formulas), are subsumed under a principle of universal deduction, such a mathematics, based upon the array of definitions and axioms of a quasi-Euclidean geometry, confuses the victim’s mind to the following effect.

The victim assumes falsely, that the arbitrarily assumed, deductive connection among those sense-certainties treated, respectively, as cause and effect, represents the primary form of physical relations in space-time, as that of straight-line connections. That victim tends to assume that the relationship between the two phenomena is either percussive, or of the form of “action at a distance.” Hence, all such more popular ways of thinking, including many falsely called “non-linear” today, are axiomatically linear, “ivory tower” systems.

That kind of commonly taught, more popular assumption, is the first cause for the pervasive falseness inhering in today’s teaching of generally accepted classroom mathematics, and of statistical economic forecasting. This cause is rooted in the adoption of an arbitrary set of *a priori* definitions and axioms.¹⁶ These definitions and axioms have a systemic, pernicious effect on the thinking of the victim, even if that student is unaware of the planting and existence of such induced axiomatic assumptions in his, or her own deeper, axiomatically controlling mental processes.

The second, complementary source of falseness, is the popular failure to accept the authority of experimentally validated universal physical principles, as the axioms which must

16. The doctrines of “mathematical economics” derived from a melding of the legacy of Leon Walras and the positivist Lausanne School, with the systems of solutions for simultaneous linear inequalities which charlatans have derived from John von Neumann’s and Oskar Morgenstern’s *The Theory of Games and Economic Behavior*, are examples of this kind of folly.

replace, entirely, the *a priori* sets of definitions and axioms which are more commonly taught in universities, still today. This popular ideological contamination of mental life, is the problem which must be understood, and conquered, as a precondition for any rational comprehension of the means by which a generalized increase in the average productive powers of labor is made possible. The proof of the importance of overcoming this commonplace, and extremely important problem, is expressed in either the case in which increase of those productive powers is suppressed, or, conversely, happily, in which the increase of such powers is effectively fostered.

First, review summarily the connections of modern economic progress to scientific and technological progress. After that, we shall examine the more complex case, of the way in which the matters of both scientific and social progress are interconnected in determining the success or failure of a modern economy.

Thus, first, we focus upon the connection of productive powers of labor to scientific and technological progress as such. Mastering some of these points will take a bit of work, but, considering the terrible consequences of continuing not to understand this point, the chore is manageable, with a little study, and very much worthwhile.

Although the crucial features of the development of modern mathematical-physical science, can be traced to Kepler, Leibniz, and their contemporary co-thinkers, the crucial challenge was not mastered, until the successive work of Carl Gauss and Bernhard Riemann in defining the hypergeometric principles of a physical geometry expressed in the form known as a *multiply-connected manifold*. Don't let the strange words frighten you. Two distinguishing characteristics of all such Gauss-Riemann manifolds, are of the relatively greatest interest for the subject of long-term forecasting.¹⁷

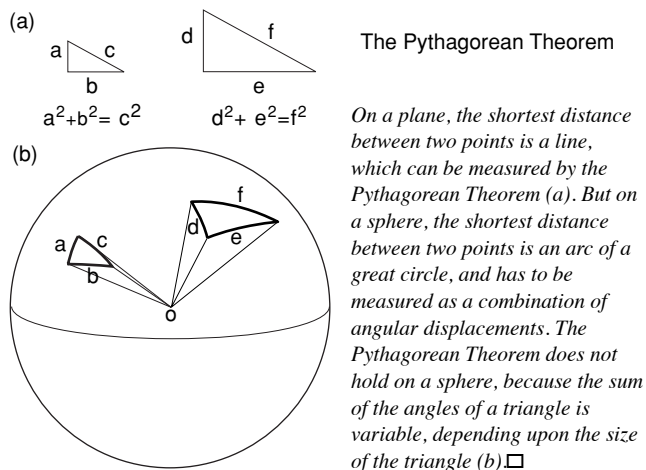
First, that Riemann threw out all those misleading definitions, axioms, and postulates of an aprioristic formal geometry, and replaced these by an open-ended array of experimentally validated universal physical principles. Nothing but such experimentally validated, universal physical principles, was allowed. This restriction included the notions of space, time, and matter themselves; no purely mathematical definitions of these terms were permitted.

Second, Riemann, following Gauss's work on the general notion of curved surfaces, insisted that the multiple-connect- edness of any such specific geometry is expressed by a unique characteristic of action, replacing the so-called "Pythagorean" measure used to compare a so-called simple Euclidean

17. Riemann's accomplishment is so deeply indebted to the preceding work of his mentor Gauss, that what we term a Riemannian manifold must be better named a Gauss-Riemann manifold. In that way, Riemann's unique contribution to the science of physical geometry is securely and precisely located, both historically and functionally.

FIGURE 2

Euclidean vs. spherical geometry



formal geometry with a spherical geometry [Figure 2]. The same function of a characteristic of any manifold applies, as Gauss and Riemann each show, to defining the higher orders of curvature by means of which one manifold is distinguished experimentally from another.

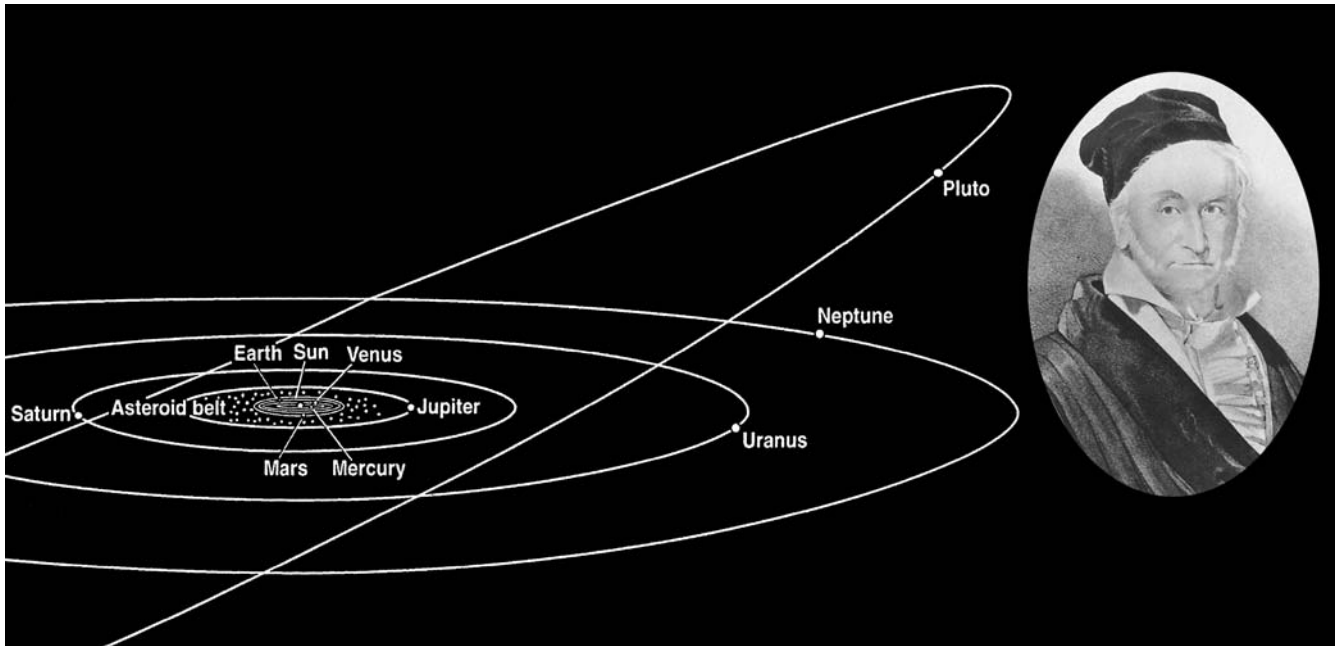
The latter characteristic of actual economies, can not be adduced by formal mathematical analysis of the manifold itself. It must be adduced by the methods of experimental physics. It can not be "proven" at the blackboard, or by a computer system; it must be measured in the laboratory, or in the actual performance of a real-life physical economy.¹⁸

That means the following.

Whether within the domain of the physical space-time laboratory, or astronomy, as such, or in the relative change in economic physical-space-time caused by introducing a newly discovered universal physical principle to technology, the addition of a new universal physical principle to either the scientific investigation, or to human technological practice, results in a change in the physical-geometry of man's efficient relationship to the universe around us. The Gauss-Riemann manifold shows us how to understand the practical implications of adding such validated new physical principles of this axiomatic quality.

In the field of astrophysics, for example, the inclusion of a newly validated such principle, such as Kepler's discovery of the elliptical characteristic of the planetary orbits, requires us to measure the characteristic features of the whole domain in a new way.

18. i.e., the distinction on which Nicholas of Cusa premised the founding of modern experimental physics. The kind of experimental design required, a so-called *unique experiment*, need merely be mentioned for our purposes in the present report.



“Gauss’s corroboration of the orbit of the asteroid Ceres as the orbit of a missing, formerly exploded planet specified by Kepler, is a demonstration of the exhaustive approach to that measurement of a characteristic, non-constant curvature of a regular process, which is demanded by Riemann’s dissertation.”

Kepler reacted to this discovery in two leading ways. First, he redefined characteristic interconnections within the Solar System according to the implications of this discovery. Second, he measured the characteristic interval of action to be associated with those implications, just as Riemann specifies this necessity in the conclusion of his habilitation dissertation. Gauss’s corroboration of the orbit of the asteroid Ceres as the orbit of a missing, formerly exploded planet specified by Kepler, is a demonstration of the exhaustive approach to that measurement of a characteristic, non-constant curvature of a regular process, which is demanded by Riemann’s dissertation.¹⁹

In the field of physical economy, we have a case which is more complex. Limiting ourselves, for the moment, to the physical side of the matter as such, we have the following.

Provided that we revise the physical processes of an economy, including both its modes of production and basic economic infrastructure, in ways conforming to the discovery of a new family of physical principles—a new manifold—the characteristic result of a constant quantity of individual human effort will be changed for that national economy as a

19. Cf. Jonathan Tennenbaum and Bruce Director, “How Gauss Determined the Orbit of Ceres,” *Fidelio*, Summer 1998. Kepler’s discovery of the principle of gravitation was derived as a by-product of his derivation of what are usually misnamed Kepler’s Three Laws. The combination of these three principles shows that we must measure the characteristic action of a Solar System in which elliptical planetary orbits exist, in a different way than were the orbits simply circular. The resulting difference in characteristic is expressed in terms of a measurable magnitude known as gravitation.

whole. In the case of technological progress, the change will be a gain in the ratio of total physical output to the actually incurred costs of production.²⁰ Those comparisons are to be made in terms of market-baskets, rather than such inherently unscientific standards of measure as mere money-prices.

This gain in rate of growth, per capita and per square kilometer, for that economy as a whole, is a measure of a change, to a higher physical state, in the characteristic curvature of that economy’s economic physical-space-time curvature.

Thus, if we can ensure that such validated discoveries of principle occur, and that the economy is modified in the way these discoveries imply, there will be a resulting, generally increased rate of physical-economic growth, per capita and per square kilometer.

Similarly, if we suppress the continuation of such realized scientific and technological progress, or even go to such extremes as reversing previously introduced gains in technology—as the U.S.A. has done repeatedly during the recent twenty-eight years—a catastrophic trend toward collapse of the economy must result. Such a catastrophe must occur, either if a deliberate anti-science policy was imposed, as has been done to U.S. policy-shaping, increasingly, since 1966-1972 changes in long-term economic policy, or if such a disinvestment in the prerequisites of scientific and technological progress was imposed through the impact of financial and

20. Whether those long-term trends in rising “equilibrium costs” are met in the short term, or not.

monetary policies, as has been done since 1971, especially since 1977.

Once those two mutually reinforcing sets of policy-changes were introduced, it became virtually impossible to generate a national real-economy profit in the way which had been characteristic of the American System of political-economy in all successful periods since U.S. Treasury Secretary Alexander Hamilton.

As the earlier investments in scientific and technological progress wore out, and as the quality of productivity-related and other education in schools and universities worsened since the mid-1970s, the only remaining source of profit for the U.S. economy as a whole, became, in effect, “carpet-bagging,” looting of preexisting wealth. This took the form either of stealing from other nations and peoples, as the British Empire had done that traditionally, or looting our own population and existing, previous investments in basic economic infrastructure, development of the labor-force’s households, and production as such.

The murder of more and more of the U.S. population through such measures as the Gingrich-Gore “welfare reform” of 1996, and the recent, deliberately murderous “reforms” in “cost-efficient managed health-care,” are to be viewed, together with “outsourcing,” as typical. They typify those financial accountant’s methods, by means of which our national productivity per capita and per square kilometer, and our population itself, have been looted and ruined, even murdered, for the greater glory and profit of an increasingly damned few, Wall Street and kindred, profiteering parasites.

Whether these ruinous measures were taken in the name of “the environment,” “promoting free trade,” “deregulation,” or “globalization,” the overall effect was the same.

2. Self-destruction as a social process

The cultural change which led to the present process of self-destruction by the United States, and also other nations, emerged as a mass phenomenon, the so-called “cultural paradigm-shift” of the late 1960s, during the 1964-1972 interval, more specifically. By the early 1980s, this process of national economic self-destruction, as I have just described it in the preceding section of this report, was established as the seemingly almost incontestable, prevailing trend in cultural change.

Thereafter, more and more people departed the ranks of those who had caused the dumping of President Carter, as an expression of their angered opposition to the evil policy-changes of the Trilateral Commission’s Carter-Administration period.²¹ More and more of these former Carter oppo-

21. Never forget that both Carter and George Bush were among those initially coopted into David Rockefeller’s Trilateral Commission. It was during that

period, preceding the Trilateral Commission’s election of its hand-crafted Jimmy Carter as President, that the core of the policies of the future Carter and Bush administrations was crafted by a team headed by Cyrus Vance, Zbigniew Brzezinski, et al. This was a project of the British Foreign Office’s creation, known as New York Council on Foreign Relations’ “Project 1980s” reports of 1975-1976, subsequently published, under a Lilly Foundation grant, by McGraw-Hill.

period, went over to applying, in effect, for employment as virtual paid agents of the very same destruction, such as that launched by Carter’s appointment of Federal Reserve Chairman Paul Volcker, which had earlier ruined the U.S. economy, and, for many, their lives, too. The recent, wide participation of a very large part of the nation’s family households in mutual-funds adventures, typifies the way in which more and more of our current population of credit-card slaves, has since turned against our nation, and, in the end, against themselves as well.

Thus, it is broadly the case with much of our population, that the same system which they had opposed, until the beginning of the 1980s, became the virtual “foreign occupying power” which they had decided to support, from about the middle of the 1980s onward. That is how a virtual majority of the actually voting citizens of the U.S. came to decide, either through despair, or other expressions of personal moral corruption—i.e., cultural pessimism—to participate in destroying their nation, and themselves. “Look, I can’t worry about what happens to the world as a whole; I have to concentrate on the interests of myself, my family, and my local neighborhood.” That is the face of deep moral pessimism, deep moral corruption, the face of angry individuals occupied chiefly with destroying their nation, and themselves.

That is why so many today have so much to fear from those day-traders and the like, who might become the run-amok killers of tomorrow morning. Such times of sheer horror proliferate, when the moral fiber of a people has been ruined in the way so many Americans, and others, have been affected by the economic and social policy-shaping trends of the recent three decades.

If you did not see this very ugly side of the decadent role of many among your fellow-citizens, you neither understood what was being done to this nation, nor what so many among you, through your own folly, were contributing to doing to yourselves.

That accelerating moral decay among a very large ration of our post-1980 citizenry, was reflected in its similarity to the mentality of a defeated and conquered population, which has decided to seek a more secure personal life in a “Faustian pact” of service to the apparent occupying power, perhaps, in some cases, Satan himself.²²

22. Since we are on the subject of the rooting of knowable political principles in the principles of Classical art, here, the case of Goethe’s *Faust* is among the more revealing insights into a cultural phenomenon which has been the subject of special attention in Germany, but which is applicable to the population of most of all Europe, and also the U.S.A. today. The key to Goethe’s use of Christopher Marlowe’s subject, *Dr. Faustus*, for insight into the principled

We have seen this recently, in the case of the so-called Russian liberals who have sought lavishly unearned livings in lackey-like service to those foreign carpet-baggers who have taken over the richest chunks of loot to be extracted from the quasi-defeated nation. The typical self-styled “patriotic Americans” of today, such as Georgia’s U.S. Representative Barr, are not far behind the notorious, mafia-linked, unpatriotic liberals of Russia, in the depraved things they do to their own nation and its posterity.

Recognizing this factor of moral decay taking over the

The recent, wide participation of a very large part of the nation’s family households in mutual-funds adventures, typifies the way in which more and more of our current population of credit-card slaves, has since turned against our nation, and, in the end, against themselves as well.

U.S. population itself, had been key for my successful forecasting of the process which had unfolded, earlier, in the developments of the 1960-1971 interval. It was also key to my insight into the virtual political inevitability of the global financial crisis striking the world today. I focus on the narrower aspect of the latter developments, the moral decay within the U.S. population itself.

Are you predictable?

You tell me, that you make up your own mind. How, in Heaven or on Earth, could I have been so rude, and also so efficiently insightful, as ever to doubt that you do?

In fact, most of the time, and on most of the really important decisions you make, you rarely, if ever, actually make up your own mind. That fact, however its mention embarrasses you, is what most of the mass media, crooked politicians, and pollsters and forecasters generally rely upon, in the way in which they win their incomes from the credulity of those suckers—the majority of the population—who, in recent times, have seldom actually made up their own minds about almost anything of relevance to the future of our nation and

moral flaw of a real-life German Faust, typifies the case of the morally depraved person who believes, that he can cling to the pleasures and profits of his corrupt practices, and have a wonderful ending, too. Faust has not degenerated to the much lower moral level of a typical existentialist, but he is nonetheless the type of person one should be ashamed to be, ashamed enough to stop being that.

its economy.

Unless you help me wake up their sleeping minds, most people today actually know almost nothing, and will probably know even less as time passes. In place of knowing, they have adopted opinions, which, they believe, will cause other people to like them, or perhaps simply not dislike them, or even bring tangible forms of rewards, such as sex, money, and relatively higher rank in some real, or even merely imagined, social pecking-order. The popular cult of Hollywood “stars,” is a leading example of this sort of widespread corruption of the population.²³ We see that in the substitution of “textbook learning” in schools, and the related use of methods of induced behavioral modification, as borrowed from animal training, for shaping the expressed opinions of both children and adults.

This pathological state of affairs, is shown most clearly, if one attempts to provoke individuals into submitting to a Socratic form of “knowing experience.” Typically, they resist such provocations, rebuking the would-be Socrates, “I already have my own opinion.” The conversation usually breaks up at that point, the opinionated person parading off, triumphantly, knowing nothing.

That same sucker-principle, is what has made a farce of the very names of “democracy” and “democratic methods,” inside the presently Gored-out, but hopefully reformable leadership of our U.S. Democratic National Committee, in our Federal courts, or around the world today. You, with rare exceptions, despite your insisting that you make up your own mind, represent, at least typically, the most suggestible, most predictable victims of manipulation of both mass and individual U.S. opinion (in particular) of the entire Twentieth Century!

That, obviously, must change, and that very quickly. Otherwise, this nation will not live to see the bright side of the coming, Twenty-First Century. Here, in this concluding portion of my present report, I limit our attention to the way in which both hidden, and not-so-hidden popular, axiomatic assumptions control the way in which the individual members of society are controlled, to the degree of making mass behavior, including the behavior of the economy, usually so pathetically, tragically predictable lately, over periods as long as decades, or even longer.

This prompts us to revisit, briefly, the subject of Euclidean

23. Giuseppe Verdi, for example, was an Italian patriot in the tradition of Dante Alighieri, who used the model of tragedy as typified for him by Shakespeare and Schiller, to elevate the minds of Italians to the quality needed for citizenship of a true national republic. How many of the audiences for Verdi today, for example, cheer the play, rather than the individual “star performers”? How many in the audience respond to the powerful, important ideas which Verdi built into the design of his operas, for example? Yes, the leading performers must carry a heavy portion of the play, but it is the ensemble as a whole, including the musicians in the pit, who contribute to that total effect which the play (e.g., opera) as a whole must convey to the moral and intellectual uplifting of both the players and the audience.

geometry. In this report so far, we have identified the governing role of axiomatic assumptions about space, time, and matter, in shaping our policies of action, or inaction, toward the physical universe. Now, we must turn our attention to the analogous role of other kinds of axiomatic assumptions, about both man and society, which act to shape political and other opinions in much the same way that the definitions, axioms, and postulates of physical geometry do.

The two kinds of assumptions, those referencing physical geometry, and those referencing man and society as such, combine to form whatever governing “mind-set” usually controls the way in which individuals and entire nations shape their policies of practice. It is the trends generated by the impact of these “mind-sets,” which make human mass behavior as ominously, tragically predictable as it has been, over periods of decades or longer. That appreciation of the role of “mind-sets” is key to all successful long-range forecasting.

As you may have learned, from my earlier published locations, it has been, so far, since nearly a half a century, my unique contribution to scientific thought, especially to the science of physical economy, to recognize that we must not separate the axiomatic assumptions of physical science from those axiomatic qualities of assumption which are best expressed by the greatest compositions of what are rigorously defined as Classical art-forms. In other words, I made the first

successful break, through the barrier separating what England’s C.P. Snow, for example, defined as “the two cultures.”²⁴

I summarize that connection, as I have repeatedly stated it in earlier published locations, and then show the specific application of that connection to the matter of economic forecasting of either catastrophe or economic renaissance.

The reader must think of the “axioms” of universal Classical artistic principles, as analogous in form of function to the validated universal physical principles of a Gauss-Riemann hypergeometry. For our purposes here, it is sufficient to consider but a few such axioms.

1. The Prime Axiom.

The first step toward the needed solution of the so-called “two cultures” dichotomy, is found, with a wonderfully ironic appropriateness, in the first chapter of *Genesis*. Man and woman are each made in the image of the Creator, designed by Him to rule within His universe. The solution to the “two cultures” dichotomy, lies in stating that in the form of an axiomatic principle as to the form of the function so described by *Genesis*. As Leibniz said, it is a very good beginning.

The nature of man, and of man’s relationship to the universe, lies in a principle of change, the kind of principle which can not be stated in the terms of any merely deductive schema. The change in question, is *the process of mankind’s increase of its physical power to command the universe, as measured in human-demographic terms, per capita, and per square kilometer of the Earth’s surface-area.*

That power is located in a continuing, progressively ordered accumulation of discovery of validatable, universal physical principles, such as the notion of a regular ordering of astronomical changes in observed position. No assumption as to “straightness” is ever assumed; therefore, the ordering of such observed changes in position is defined as of some curvature, and that either constant or not-constant, but regular.

The principled notion, that man’s increase of power in the universe is orderable, is defined in respect to the “clock” provided by regular curvature in astronomical processes. This is also the “clock” used for transoceanic navigation.

The fact that man can increase his power, per capita, and per square kilometer, as measured by such “clocks,” by discovery of added universal physical principles, is the prime axiom on which the foundations of Classical artistic composition are laid. This is defined as the correlation between such changes in knowledge for practice, and the increase of man-

24. C.P. Snow, *Two Cultures and the Scientific Revolution* (London and New York: Cambridge University Press, 1993 reprint). Obviously, what I have done is no more than complete a needed stage in the way the greatest philosophers, typified by Plato and Leibniz, have attempted, over no less than thousands of years to date, to understand a common underlying basis in the interrelationship between man and nature. I was merely the first to make the connections to which they pointed, as explicit as a science of physical economy requires.

The Way Out of The Crisis



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kind's power, per capita, and per square kilometer of the Earth's surface.

This becomes the prime axiom of Classical-artistic principle, the definition of the individual nature of man and woman, as absolutely distinct from, and absolutely above the beasts. This prime axiom thus defines human forms of individual behavior, as distinct from the merely animal-like behavior which can be, and often is imitated by persons.

2. The Cognitive Axiom.

The instant we focus upon that process, by means of which validatable universal discoveries of principle are generated,

All discoveries of principle are generated, by individual minds confronted with the evidence of those kinds of errors in existing belief, for which there are no deductive solutions. These unique predicaments are called ontological paradoxes in scientific work, and are usually identified as metaphors within the domain of Classical forms of artistic composition.

we encounter a second barrier. This barrier is associated with the cognitive axiom.

All discoveries of principle are generated, by individual minds confronted with the evidence of those kinds of errors in existing belief, for which there are no deductive solutions. These unique predicaments are called *ontological paradoxes* in scientific work,²⁵ and are usually identified as *metaphors* within the domain of Classical forms of artistic composition. The two terms mean the same thing; the distinction in use of the terms, is that the one refers to the peculiarities of discovery of universal physical principle, the second to the peculiarities of generating a discovery of universal Classical-artistic, or analogous principle.

In science, such ontological paradoxes arise in the form of undeniable evidence which violates the doctrines of existing knowledge. If this evidence is of the form which defies any possible solution within the scope of deductive methods, it is

25. They are sometimes referred to as "crucial paradoxes," for which solutions are associated with the relatively commonplace use of the term "crucial experiments." Normally, I do not use the term "crucial experiments," because the term is associated with a relatively sloppy way of thinking about the method for proving universal physical principles. I prefer the definition of *unique experiment*, as associated with Riemann's 1854 habilitation dissertation.

to be recognized as a true *ontological paradox*. In such cases, validatable solutions are generated by those sovereign synthetic actions of individual minds which Immanuel Kant denied to exist, and are generated only in this way. The generation of such validatable forms of synthetic solutions is called *cognition*.

After such a discovery of universal physical principle is made, the solution can be proven by those methods which are associated with the notion of a *unique experiment*, a design of experiment cohering with Riemann's notion of a multiply-connected manifold. However, the discovery, once proven, can be known by a second person, only if and when that second person has repeated the cognitive experience of the first person. *This is the universal principle of cognition*. This principle, so defined, supplies the meaning of the terms "knowing" and "knowledge." It is validatable ideas (principles) generated by means of replicatable synthetic acts of cognition, which constitute the elements of the body of knowledge, as contrasted with mere opinion, the latter including merely learned opinion.

I must emphasize, that although the validated discoveries of universal principle produced by cognition, are products of the mind, rather than sense-perception as such, since their validation depends upon experimental validation, the adoption of such synthesized principles depends absolutely upon the demonstration of the efficiency of such principles in effecting a qualitative increase in mankind's power in and over the universe. Thus, all such principled ideas are securely rooted in man's efficient relationship to the universe. Thus, they are never "merely ideas," but are true, experimentally validated universal principles.

Thus, this principle of experimentally validated cognition is also a universal principle. It is this principle of cognition, so defined, which, in turn, defines the *active principle of individual human nature*, and that axiomatically.

3. The Classical artistic principle.

If two, or more persons, have shared the experience of generating the same, validatable universal principle by means of individual cognition, each is capable, as Immanuel Kant and his followers could not, of *recognizing* the act of discovery which has been generated within the cognitive processes of the other.

In such cases, we have touched a faculty of experience which lies outside mere sense-perception. Now, we have, in addition to those images associated with sense-perception, another set of images associated with *recognizable cognition*. These ideas are linked to physical reality through relevant forms of experimental validation. All ideas, whether scientific, or artistic ideas, or Platonic ideas of natural law²⁶ and politics, belong to this category of conceptions generated by recognizable cognition, rather than mere sense-perception. This is the definition of what are termed *Platonic Ideas*, in

26. e.g., constitutional law.

opposition to mere opinions.

The fact that shared knowledge of validated discoveries of universal principles depends absolutely on this interactive relationship among the cognitive processes of individual persons, defines the axiomatic principle underlying the notion of the distinctively human quality of *social relations*.²⁷

This axiomatic quality of human social relations, when addressed as social relations, defines the meaning of Classical artistic composition. The essential quality implied in such artistic composition is the Socratic quality of *truthfulness*, as Plato puts these notions of truthfulness and justice in the mouth of Socrates, as contrasted with the intrinsically untruthful opinions of the opposing characters Thrasymachus and Glaucon. This quality of truthfulness lies in reliance upon the peculiarly Socratic notion of validatable products of cognitive synthesis.

That much said, now focus upon the role of Classical artistic composition in defining the universal principles which apply to the proper ordering of social relations generally.

For purposes of education in classrooms, the best illustration of what is meant by ideas (i.e., Platonic Ideas), is the contrast between the model of Classical sculpture, as typified by the model cases of Scopas and Praxiteles, in contrast to the relative deadness of not only pre-Classical Greek and Egyptian "Archaic" sculpture, and also the decadent forms of Roman sculpture. Notable is the decadence of Roman efforts to imitate Classical Greek sculpture. This work of Scopas and Praxiteles must be compared with the paintings of Leonardo da Vinci, Raphael Sanzio, and Rembrandt. Leonardo's mural, *The Last Supper*, is the best choice of pedagogical model of the connection between the Classical sculpture of Scopas and Praxiteles, and the revolutionary perspective which Leonardo introduced to painting.

The characteristic of Classical sculpture is that it is apparently "off balance." In fact, the mind perceives this as a piece of static marble which conveys to the mind of the observer the notion of a body in mid-motion. Not anything "off balance" will produce this effect; it must register in the mind as a truthful image of a body in its proper mid-motion. This occurs in the mind in the same way that cognition functions to generate the notion of a true Idea.

The same principle underlies the methods of Classical musical composition of J.S. Bach, and such Bach followers as Mozart, Haydn, Beethoven, and Brahms, in contrast and opposition to the virtually idea-free banality of the French decadent, Romantic composer Rameau. As Bach's *A Musical Offering* and his posthumously published *The Art of the*

27. The quality of *loving*, as identified in the writings of Plato and the Apostle Paul by the Greek term *agapē*, is a quality which exists only within the domain of cognitive social relations, not sense-perception. One loves a person not because "they are beautiful to look at," but because the cognitive interaction with them is beautiful, because they have beautiful souls. This is the meaning of the term "beauty" as applicable to Classical artistic compositions, and to the passion for truth and justice, in opposition to the evil which is the Lockean or other notion of purely positive law.

Fugue illustrate the connection, it is Bach's use of the principle of inversion, within a context of Florentine *bel canto* polyphony, which generates the principle of well-tempering, and the methods which, beginning with Mozart's compositions of the early 1780s, launched the method of Classical thorough-composition also associated with the subsequent compositions of Haydn, Beethoven, Schubert, Mendelssohn, Schumann, and Brahms.

In Classical musical composition, the use of the principle of inversion to generate, and to resolve lawful dissonances, and their resolution, in a polyphonic mode, produce compositions which in and of themselves represent true ideas, in the sense of Platonic Ideas.

The lawful resolutions of these successive dissonances, impart to the entire composition a sense of subsuming *motion*, of cognitive "energy," to an effect akin to the sense of the idea of motion evoked by a Classical Greek sculpture. It is the musical performer's (and conductor's) ability to evoke the idea of that contrapuntal motion, rather than a mere succession of transitions, from the performance, which produces the effect which the century's greatest conductor, Wilhelm Furtwängler, sometimes described as "performing between the notes."²⁸

In the case of Classical thorough-composition, the power of the Classical medium lies in such exploitation of the medium of polyphony. Polyphony is premised upon Leonardo da Vinci's view of the characteristics of the six distinct singing-voice species, natural to the human singing voice's best potentials. The participation of several, or all among these singing-voice species, and the addition of instruments designed and performed to imitate the *bel canto* characteristics of the relevant singing-voice imitated, gives to such Classical thorough-composition a unique power as an expression of social relations in the performance of Classical art-forms.

In the medium of Classical tragedy, as marked by the tragedies of Aeschylus, Sophocles, Shakespeare, and Schiller, we have the most direct connection between Classical

28. The irreducible element of Classical musical composition, is the *polyphonic interval*, and not a mere interval between two successive tones of the scale. For example, when singing an interval, the mind must hear the inversion of that interval (for example). It is the dissonance generated, as in Classical thorough-composition, by the polyphonic antiphony of "parallel" intervals, which defines the polyphonic, as distinct from the ordinary, relatively linear sung interval of an individual voice. Hence, a minimum of a third tone must be added to each interval and its inversion, to bring the mind to focus on the metaphor located elementally within the simple unit of Classical musical composition. Hence, musicians must think in terms of well-tempering, rather than equal tempering. The singer (and Classical composer) uses the natural voice qualities of registration and coloration to reflect the polyphonic principle within the sung part. The polyphonic interval is not heard in the ear, but in the mind, in the same way, on principle, that the perception of motion in a static piece of Classical sculpture, defines the idea of the latter sculpture as something existing only in the domain of cognition, rather than mere sense-perception. Thus, well-tempering is Classical, whereas equal tempering is Archaic on principle. Hence, for Furtwängler, "performing between the notes."

artistic composition and political principles. It is that connection, and its practical implications for today, on which I focus, in defining the role of forecasting in defining a recovery program for the present U.S. situation.

Today's U.S.A. as a Classical tragedy

Shakespeare's *Hamlet* is, for various reasons, the most easily recognized demonstration of the relevance of Classical tragedy for defining the proper principles of political life gen-

The most notable of the general follies which have defined the predictable course of the recent thirty-odd years of U.S. history, is the disengagement of the mind of the victim, the typical citizen, from his, or her former sense of an efficient connection between his existence, and the physical reality of the economy upon which individual existence depends.

erally. The essence of the matter is summarized by comparing the famous Third Act soliloquy, along with the ultimate outcome of the decision which Hamlet presents there, to the situation in the final scene of the play as a whole.

Essentially, Hamlet refuses to change his ways, even after he has recognized that the decision perhaps dooms him and his nation. In the final act, with Hamlet and other relevant characters dead on stage, Shakespeare puts into the motion of a surviving character, the injunction, as if to the audience: Let us learn the lessons of the bloody outcome we have just witnessed, while the experience is fresh in our minds.

All of the great Classical tragedies, from Aeschylus and Sophocles, through Shakespeare and Schiller, have the utmost relative, sometimes even absolute validity, as demonstrations of universal political principle. A similar, and related importance, is to be found in such other expressions of the Commedia art as Boccaccio's *Decameron*, the *Gargantua* and *Pantagruel* of François Rabelais, Cervantes' *Don Quixote*, and Swift's *Gulliver's Travels*. Blood and ridicule, if either were well composed, may induce the cognitive processes of audiences to recognize, as a matter of principle, the penalties of certain kinds of folly.

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connection between his existence, and the physical reality of the economy upon which individual existence depends. This specific form of personal moral perversion was already rampant in English-speaking history, in the legacies of Thomas Hobbes and John Locke, and also in the radically irrationalist notion of the "invisible hand" adopted by the cult-followers of Bernard Mandeville and Adam Smith.

The form in which this erupted as a mass phenomenon in the U.S.A., during the 1964-1972 interval, owes its most significant proximate origins to the poisonous irrationalism of the German and French existentialists of the 1920s and 1930s, as typified by Martin Heidegger, Hannah Arendt, and Theodor Adorno for Germany, and Nazi philosopher Heidegger's clone Jean-Paul Sartre (and Frantz Fanon) for France.²⁹

As Heidegger intimate Hannah Arendt emphasized, the root of the existentialism represented in common by herself, Heidegger, Jaspers, Adorno, and Sartre, is the radical irrationalism of Immanuel Kant: Kant's, and post-Kantian philosophical liberalism's denial of the knowable existence of truth. In effect, Arendt's most famous treatise paints herself as a kind of Gaea, a virtual consort of Python-Satan, and, in her own right, the "mother of lies." This existentialism, as purveyed in the U.S.A. by the Josiah Macy, Jr. Foundation's circles of Bertrand Russell, Margaret Mead, Gregory Bateson, Norbert Wiener, et al., formed the crucial point of reference for what became the "rock-drug-sex youth-counterculture" of the 1964-1972 university campus.

The essential significance of these expressions of existentialist irrationalism for the predictability of the post-1960s U.S. population's trends in opinion, is that these mass developments, initially centered in the university student populations of the 1964-1972 interval, became "a march through the institutions," a virtual locust-plague of irrationalism, whose spreading influence prompted more and more among the general population, especially the younger generations, to make an open break with reason itself. The characteristic of this increasingly lunatic trend, was a militant aversion to the suggestion that there must be some efficient connection between the material means for producing human existence, and the goals of human existence.

In summation, a break with the notion that opinions ought to be based upon validatable principles respecting mankind's relationship to the universe in general. Hence, especially after the effects of the 1979-1982 phase of Federal Reserve Chairman Volcker's rampaging destruction of the U.S.'s real economy, the trend in shaping of popular opinion became more and more insane — literally insane.

Typical of this process, was the increase in the ration of the labor-force employed in those forms of "services" which are of doubtful value to the real economy and the real popula-

29. The corrupting influences of the phenomenology of Husserl, and the neo-Kantian Karl Jaspers, are notable influences upon the development of the German existentialist followers of the satanist Friedrich Nietzsche.

tion, an increase coinciding with a collapse in the percentile of the labor-force employed in useful forms of employment. The break from the idea of producing, or assisting the production of useful physical goods, contributed to fostering a sense of a break away from a rational sense of the means by which a population acquires its income, from the production of the wealth on which that income depends. The man-to-nature relationship became more and more distant, even broken psychologically, in this way. Thus, the protective link to personal sanity was strained to the utmost, even broken in the manner the brutish Mark Barton episode illustrates.

Cut loose, thus, from earlier, traditional moorings to sanity, the post-1964-1972 population lost its moorings within the real universe. Reality ceased to be a standard for judging which opinions were sane, and which not.

The worst part of this, was not that psychological break with reality, which dominates the majority among “baby boomers,” x’s, and y’s today. The worst part, has been the passion with which these errant minds defend those opinions and preferences which impel them to reject the physical reality of human existence, just because physical reality is seen as an alien force whose influence they must resist, even reject. Thus, they have an impassioned impulse to take pleasure from savaging those ideas which suggest submission of the mind to the validation of the principles of social practice with the real, physical universe.

This leads our attention to an additional, axiomatic principle of Classical artistic composition.

What makes the clock tick?

In earlier published locations, I have emphasized my agreement with Friedrich Schiller on the subject of the contrast between the way in which animals and people play. This connection is aptly illustrated by such cases as the child and puppy playing happily together, or observing the relationship between man and horse in dressage. In both cases, a certain point of similarity, but also, contrary to the impassioned belief of Britain’s avowedly bestial Prince Philip, an absolute, principled difference, between man and beast, is demonstrated.

The happy puppy or horse at play displays a certain outward similarity to the happy child. The difference is, the child’s most intense expression of happiness at play arises from the child’s successful cognitive experience, of making a discovery of principle, which is, for that child, an original such discovery. This is complemented by the fact, that when the adult ceases to show the quality of happy play in attacking ontological paradoxes, or has no happy sense of metaphor, that adult is showing us that he, or she has gone creatively stale, as psychiatrist Dr. Lawrence Kubie described cases of neurotic distortion of the creative process.

The issue immediately under scrutiny at this moment, is, “What makes the clock tick?” We have pointed to certain characteristics of the cognitive process. What is the driving force which sets those characteristics into motion? What is

the passion which pushes the thinker to reaching the cognitive solution, to holding like a terrier to the moral issue, until, finally, a truthful solution is discovered? Plato’s Socrates, like the Apostle Paul, answered: *Agapē*.

There remains, despite the qualitative distinction, something to be learned from the happy puppy at play. In the beast, as in the person, we observe something important in common, something we might wish to name as “a zest for living.” This, the happy person and happy beast share, at play. Yet, since

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this zest for living is a matter of expressing one’s nature, there is a corresponding difference in the result. In short, the truly human person makes cognitive discoveries, not for profit, but because it is the natural expression of happiness to do so.

The added difference is, that while the beast, even the chimpanzee, can learn from experience, no beast can transmit cognitive discoveries of universal principle from one person, or one generation, to another. Thus, while the beast has a biological connection to its species as a whole, the pet’s personality lives on only through participating in the life of the human beings associated with it. Only mankind affords its individual person a cognitive, personal identity in all eternity, through the radiation of the original discovery of validatable universal principles, both physical principles and those principles typified by Classical artistic composition.

Here, in the latter connections, the individual’s zest for life is expressed, a zest, which, in its best expression, is the individual person participating in his species through receiving and generating those ideas which meet the standard of universal principles. Such uniquely human, creative playfulness, is the distinction of the human form of zest for life. This is the mainspring of society’s progress, the energy which makes the clock tick.

When this form of the zest for life is at full tilt, we witness the creative personality optimistically at work. It feels like play, but it is the motor-force of all human progress at work. On the contrary, when cultural pessimism takes over, the crabby personality tends to behave as a Hobbes or Locke might propose, even to the degree of becoming what the Twentieth Century would recognize as the fascist beast-man of the type of Martin Heidegger, Hannah Arendt, et al.

Thus, in forecasting the direction in which the outcome of current history will be shaped, we must consider both the axiomatic characteristics of policy-shaping, and also the interrelationship of that with the contrasting qualities of cultural pessimism, or optimism.

The tendency has been, that when a combination of alienation from reality coincides with a self-feeding process of increasingly intense cultural pessimism, the very worst destiny tends to be the virtually inevitable outcome of the relevant part of current history. On this account, periods of cultural

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decadence, such as those of the 1964-1972 interval to the present date, tend to go to their limit. That limit is usually defined by a form of collapse of that society, a form consistent with the characteristic flaws of that society as an unfolding, degenerative process. This is what we, in the U.S.A. and much of the rest of the world, have experienced as an unfolding process, during the recent decades.

When the force of reality has shattered what had been the force of social authority attributed to the decaying regime, the society has a chance to recover. In such moments of crisis, the controlling delusions of earlier time are discredited. Reality stalks forth. If the society accepts reality, it may recover, and even learn from that experience, not to repeat such follies in the future.

That is the principle which every great Classical tragedy has taught its audience. It is from real-life tragedy, as the Classical stage brings that into focus for its audience, that societies may not merely revive, but rise to higher levels than ever before. All Classical artistic composition has a similar function. All that we know of man's nature, in this respect, we learn through the medium of Classical artistic composition.

3. Epilogue: crisis and mind-set

What, then, defines the outer limits of existence of a form of society self-governed by a tragically fatal sort of mind-set?

The general answer is already implied by the bare notion of a Gauss-Riemann manifold. In this instance, the manifold is of the LaRouche-Riemann form, as the interrelationship

of universal physical and Classical-artistic principles has been identified here. Summed up in the fewest possible words: all such systems are self-bounded systems, in the same general sense that a sphere is a self-bounded system throughout.

The more specific analogy, is the case of a planetary orbit, as the Kepler-Leibniz-Gauss-Riemann notion of regular non-constant curvature defines a regular orbit, or any other manifold of this type. In such cases, or any analogous one, the limits of the system are self-bounded, as the analogy of the sphere suggests.

The U.S. economy and associated Bretton Woods system, as these have coexisted since the 1971 introduction of the ultimately self-doomed "floating exchange-rate monetary system," are an inherently self-doomed system, which, if their existence is continued in that form, must converge on a certain boundary-state, at which they must, in effect, be turned inward upon themselves, and destroy themselves in that way.

The key to understanding that system, in particular, is to place emphasis upon the vicious discrepancy between the characteristic form of action which is built into the system, axiomatically, and the real universe on which the system acts, the universe also acting upon the system.

My Triple-Curve illustration is the simplest possible representation of the way in which that tragic self-boundedness of the presently doomed system has been defined. The flight from reality, upon which the system has been based, since the 1964-1972 cultural-paradigm shift, has been into a "post-industrial fantasy life," but a fantasy-life whose physical continuation depends upon the very real economy from which the fantasy-life is fleeing, and attempting to destroy all at once. The resulting, geometrically increasing discrepancy between that fantasy and the rejected reality on which the fantasy's continuation depends, defines a limit, exactly as my Triple Curve simply defines the essential relations among the fantasy and the economic reality.

In such a situation, no matter what tricks are used, in the effort to perpetuate the doomed illusion, the more the tricks, the more inevitable the doom. When the rate of pressures from the real economy, against the fantasy-system, are increased more by the tricks, than the gains won by the tricks themselves, the system has reached its outer limit of continued existence. That illustrates the notion of a self-bounded system. That defines where the world is at this time.

Under such conditions, the question of survival becomes, simply, can enough people be prompted to make the necessary changes in their axiomatic assumptions, fast enough, in time, to set into motion the new, viable economic process, which is required if mankind is to be prevented from going to its doom along with the inevitably doomed, tragic old system now collapsing. The question is, can you organize your neighbor to awaken, and become sane again, in time to launch the new system, before we all go down together for failure to launch the new system in a timely fashion?