

The Concluding Document of a Series: Now Comes Economic Time

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This is the third, and concluding document of an EIR series written in this author's supplementary response to a question submitted, with an eye to the subject of a new U.S. economic policy, during the course of an international webcast of January 22, 2009, on the current economic crisis. The titles of the preceding two documents of the series are "Nations as Dynamical" and "The Meaning of Physical Time."

Foreword: What Is Timely Performance?

The following pages are devoted to a summary of the most significant development in the scientific basis for the knowledge and practice of economy since the 1907–1909 period of the closely related work of Albert Einstein and Hermann Minkowski on what was then named "Special Relativity:" the crucial importance of the relativity of time itself. That is the notion of relativity which underlies any actually scientifically competent effort to understand those crucial issues of economic policy which have befuddled the leaders of nations globally since the close of July 2007, the policy-issues which menace the present U.S. Obama government at this present instant.

The validity and importance of those connections for shaping the needed policies for the global economic breakdown crisis now in full swing, will become clearer in due course, here.

In fact, the roots of the principle of relativity in modern science, go back to the original discoveries of the principle of gravitation by Johannes Kepler, most notably Kepler's general principle of gravitation, a conception whose discovery is presented, together with the relevant formulation, in painstaking detail, in his *The Harmonies of the World*. Later, Albert Einstein had credited that discovery by Kepler as the proper foundation for modern physics in general, on the condition that the discovery is situated, as Einstein intended, in the context of the case presented by Bernhard Riemann's 1854 habilitation dissertation, and in the

settings of the ancient and modern definitions of the principle of dynamics, as given by the ancient Pythagoreans and modern Gottfried Leibniz.

On the relevance of this matter for U.S. and world economic policy today, I say the following now, and will deal with the matter here again, in appropriate depth, as we approach the concluding pages of this report.

Although there is now widespread, and growing admiration, as also fear, of the perfect success of my July 25, 2007 webcast's forecast of the immediate outbreak of a global economic breakdown-crisis of the present world monetary-financial system, there is little confidence, even in leading U.S. Government circles, for actually adopting and implementing those urgently needed, immediate actions without which the world as we have known it, including our own U.S. political-financial system, would now, assuredly, simply cease soon to exist.

In these pages, I explain that crisis, its causes, and its remedy. When the horrid consequences of failure to heed my warning here, are considered, my forecast may be seen by some thoughtful readers, as, in both theory and practice, the most important piece of writing on economic policy as such which has been written in world history so far. As you shall see here, that is no exaggeration, even in the slightest degree.

I explain.

The customary European civilization's traditional view of history, as it exists in the teachings of schools, universities, and so forth, today, has been chiefly shaped, and also significantly crippled, by resort to the vantage-point of the largely doubtful assumptions of what is widely viewed, retrospectively, as what the Sophists of ancient Greece experienced in their own tragic role as a forerunner of the tragic situation inherent in today's widespread, reductionist opinion. This reductionist legacy has been widely reconciled, still today, with the Sophist-like traditions of Aristotle, as that tradition is typically reflected in the fraudulent, *a-priori* presumptions of Euclidean *a-priori* definitions, axioms, and postulates. Under that pro-Aristotelian scheme, all accounts of history and its consequences, have been degraded to the assumption, that the universe as a whole is to be defined, in both the very large and the very small, by those unfounded assumptions respecting space and time which are consistent with the *a-priori* assumptions of Aristotelean and Euclidean dogma.

That is the same as to say, that the very boundary conditions most often applied to describe every aspect of human life's experience, have been thus premised upon still-prevalent presumptions which have never been proven in fact, and which are, in fact, as I shall indicate in the following chapters of this report, largely absurd from the standpoint of more carefully considered, experimentally validated standards of physical-scientific practice.

Science itself must now come to lead the rescue of mankind from today's popular expressions of mankind's ancient follies.

On this account, every competent view of the decline of the culture of physical science over the course of more than four recent decades, is faced with accumulated evidence which tends to prove that the ideas common to such as Aristotle, Euclid, and Descartes are not, in fact, merely false, but are ruinously absurd. Yet, for the most part, even our leading universities' tradition of today, continues, still, to defy reason in these matters. They define it *a-priori*, *axiomatically*, as if by obedience to a babbling Emperor Nero's imperial decree.

For this reason, it is urgent that the 1854 habilitation dissertation of Bernhard Riemann be remembered, especially on account of both that dissertation's opening two paragraphs, and its closing sentence, as having given an urgently needed, new birth to modern science, then, and as being typical of those foundations of what had become the greatest achievements of recent past times. Riemann's dissertation is proven to be indispensable in laying the basis for my own unique achievements, my repeated successes as a long-range economic forecaster.

As the late Albert Einstein had warned, during the last years of his life, the net effect of the revolution in science launched by Riemann, was a revolutionary change in the notions of space and time. Unfortunately, even the Hermann Minkowski who had certainly earned much credit for his 1907–1909 role, as an ally of Albert Einstein, in promoting the concept of what was then known as “special relativity,” made the significant error of substituting the proposal for a Lobachevskian geometry for a truly anti-Euclidean, Riemann standpoint; but, nonetheless, science, still today, should not forget Minkowsky's resonant utterance in his famous lecture on relativity, that Einstein's presentation of a case of “special relativity” showed that “space by itself and time by itself” no longer existed for the future of physical science.¹

¹ Speaking of a highly relevant matter here, in formal terms, the introduction of a non-Euclidean geometry was actually conceived by Carl F. Gauss during his student days of association with his mentors Abraham Kästner and A.W. von Zimmermann. Kästner, the initiator of a modern, explicitly anti-Euclidean geometry, was the pioneer in rejecting any likeness of a Euclidean geometry. On the later issue of the claims of János Bolyai, see two of Gauss's letters to Farkas Bolyai (Gauss's old friend and János's father), in Carl F. Gauss *Der “Fürst der Mathematiker” in Briefen und Gesprächen* (Munich: Verlag C.H. Beck, 1990), pp.137n, 139–140.

Unfortunately, the third of the leading, pre-Riemann advocates of a non-Euclidean geometry (Kästner, Gauss, Janos Bolyai, and N. Lobachevsky), János was not consoled by Gauss's generous words on the subject of the conflict. Gauss's own reply to Farkas Bolyai on this matter, reflects an important weakness in Gauss's approach to presenting his own accomplishments (under the politically unfavorable circumstances established by Napoleon Bonaparte's reign, and, later, until the death of the hoaxster Augustin Cauchy, that at a time which, unfortunately, coincided with the onset of Gauss's own terminal years). To read Gauss's private intentions in such matters, it is essential to recognize something important of Gauss as coming to the surface in the work of Bernhard Riemann and Alexander von Humboldt's protégé Lejeune Dirichlet.

In the following pages, you will encounter evidence of another great quality of Riemann's work for contemporary science, its essential moral significance for dealing with the presently onrushing threat of a very early general physical-economic breakdown-crisis of this planet as a whole.

Riemann, Planck, and Einstein

It happens, by no accident, that the matter of the relativity of time could not be approached successfully, except in a very special way. As I shall indicate the reasons for that here, the relativity of time could not be shown without situating the real issues involved from the standpoint of reference of what I have defined as a science of physical economy, the subject of my own notable professional expertise. Hence, that aspect of relativity is of crucial importance for identifying the causes and remedies for the presently onrushing, global economic breakdown-crisis.

On this account, it must be said here, that a science is never science when it is merely formal, as Riemann warned in the case of formal mathematics.² Therefore, to advance knowledge in a new, crucial topical area, it is indispensable, first, to locate that physical subject-matter which is most relevant, functionally, to the principles being considered, human economic behavior.

The subject here, is, therefore, man, and, especially, the follies of currently widespread popular and related opinion.

In the matter at hand, there can be no competent treatment of the subject of economy which does not, by its nature, provide a truly integral picture of the functional interplay of physical principle and the underlying principles of action of the human will. This can be achieved only in the subject of a science of physical economy, my own exceptional specialty.

Therefore, I have proceeded as I have done in what this present article completes as a series of three small-booklet-sized EIR features, a series prompted by the occasion of an important, highly relevant question posed to me publicly during my January 22nd international webcast.

I. How To Make a Forecast

Mankind changes the physical value, and therefore the proper *physical measure* of physical space-time, through the combination of physical-scientific and associated progress in the rate at which mankind changes the tempo of all other physical processes on this planet, and, now, recently, beyond that. This matter of principle is most clearly shown in the effects of

² Cf. the opening two paragraphs and concluding sentence of Riemann's famous 1854 habilitation dissertation.

discovery and implementation respecting the physical increase, or decadence, of the human species' special kind of power in the universe, per capita and per square kilometer of relevant territory.

Notably, the scientific description of the pathetic incompetence of all current opponents of science-driven increase of the human population, is shown in that they implicitly deny the fact, that failure to progress scientifically in growth of the economy, as our U.S.A. has failed, consistently, during the recent forty years (1968–2008),³ means that the fate of mankind has been in the hands of influences akin to those kinds of accelerating processes of collapse, through attrition, which are, categorically, an imitation of the familiar boundary presented to us in the case of lower forms of life: as boundaries in the sense of potential for the relative, ecological population-densities which are encountered among the sub-human forms of life. In fact, this has also been the case with all known oligarchical cultures of European and related experience since the destruction, through effects of salination, of the Mesopotamian, bow-tire culture of ancient Sumer, or, the doom of that Biblical Sodom and Gomorrah which appears to have enjoyed a certain salty kind of revival in current modern times.⁴

Mankind as a species, is, indeed, *potentially* subject to those “forces” of ecological attrition in population-densities, the which are familiar to us among the populations of the lower forms of life. For example: we, admittedly, sometimes encounter a transitional condition, between animal ecology and so-called human “ecology,” in the domain of animal husbandry, and also

³ Since the combination of the 1967–68, successive collapse of the British pound sterling, U.S. President Johnson's capitulation of March 1, 1968, and the riotous outburst of the Spring, Summer, and Autumn of that year. U.S. fiscal year 1967–1968 was the beginning of a net collapse in the basic economic infrastructure of the U.S. economy: we have been going downhill in physical economy ever since. The 1968 election of President Richard Nixon has been the beginning of the end reached in today's aftermath of eight years of the worst U.S. Presidency in U.S. history since the end of that British puppet known as the Confederacy. Even Presidencies such as that of relics of the Confederacy, Theodore Roosevelt and Woodrow Wilson, were not as thoroughly rotten as that under George Shultz's puppet George W. Bush, Jr.

⁴ If we, for convenience, compare the “cultures” of mankind with those attributed to the higher apes, we must recognize that the human species is a relatively poor performer as a species, until we take efficiently into account the effect of the human creative-mental powers which are peculiar to all mankind, but absent in all lower forms of life, including the apes. These are powers not to be confused with the mere problem-solving capabilities of dogs and apes, for example. Creativity is not a matter of “knacks,” but of discovery and employment of new *universal physical principles*. All forms of life are inherently clever, relative to today's right-wing free-market ideologues, such as Hank Paulson, but none, excepting mankind, is actually, potentially, efficiently creative. Which is why we must say, of all of the co-thinkers of Paulson and cultish groups, such as the dupes of the American Enterprise Institute (AEI), who have failed the United States and its citizens so miserably, over recent decades: they might have been better employed in attempts to learn to behave as if they were actually devoted to human interests. AEI today typifies the rebirth, after Pearl Harbor day, of those anti-Franklin Roosevelt associations which changed their outer clothing, but have otherwise remained, inwardly, today, the same traditionally, pro-Mussolini and pro-Hitler, as they were, overtly, up to the events at Pearl Harbor. The Franklin Roosevelt haters of today, such as Felix Rohatyn and Britain's drug-trafficking George Soros, typify that legacy.

among populations of plants and their infectious diseases. *However*, these later, seemingly exceptional categories of experience with animal husbandry, and the like, are effects of human culture, rather than being endemic to the animal species considered in this matter.

Thus, without the impact of those aspects of scientific and technological progress which increase the potential relative population-densities of societies, the human populations must tend to suffer a decline which verges upon catastrophic demographic and related effects, as we have suffered so, most conspicuously, under the regime of George W. Bush, Jr. In other words, the practical issue presented to statecraft, is a matter of the balance between the decline of the human condition, due to attrition, and, otherwise, as resisted, or even overcome, by the increase of human potential relative population-density through the realized benefits of periods of the acceleration of investment in the fruits of scientific and related progress.

If that is considered, we should seek to craft a set of scales comparable to my economic “Triple Curve,” which corresponds, as a representation, to this array of conflicting effects within the bounds of human experience as such. We can already, thus, present a notion of relative time, distinct from clock-time, in terms of the net effects of the time-measured rate of change in the potential relative population-density of both the U.S. and world populations. The prospect of the effect which we will have represented, approximately, by such statistical schemes, presents us with a useful indication of the existence of a more ominous process in development, (the effect of realized investment, or relative lack of investment), in relatively capital-intensive scientific progress.

The effect of wisdom on this account, would be to measure the rate of the physical-economic effect of the passage of clock-time in social (e.g., “demographic”) terms.

Perhaps the most startling, and relevant empirical effects with which the novice is confronted in studying that approach, is the effect of the promotion, or lack of promotion, of increase of what is termed “energy flux-density” of the applied sources of power employed to maintain and improve the rate of productivity in the population generally. Suddenly, thus, the practically expressed powers of the typical human mind, when expressed by the society as a unit, become a measure of the functional relationship between the trend toward rise, or fall, of the *relative potential relative population-density* of the society, and the variations in the rate of time during which any among the physical effects of this process unfold.

In other words: “In what condition will the society be, in these terms of reference, at a certain future date?” “At what rate will that change occur?” Instead of asking to see the U.S.A. in the year A.D. 2025, ask, in what year will the U.S.A. actually reach a condition which could be reached potentially in the year 2025, or, perhaps, only 2050? Where does the zero-point of hovering lie, between net growth and the net collapse, which has been the

characteristic trend in the economies of the U.S.A. and Europe since the tumultuous developments of 1968?

My Own Forecasting

All my forecasts, since my short-term, mid-1956 forecast of a deep early 1957 recession, have been of that type. These are typical of the method of forecasting, premised on Riemannian conceptions, which I have employed with such relative success, relative, that is, to the relatively failed methods of forecasting adopted by other ostensibly known economists ploughing the field during approximately a half-century to date.

This was the basis for my warning in Summer 1956, which was based upon my systemic evidence of a then onrushing relatively awesome U.S. economic recession, a recession centered in the evidence I considered in respect to the exemplary case of the foolish practices of the auto industry's Robert McNamara, *et al.*, at that time. The evidence of the contrast between the physical trends built into systemic practice during the mid-1950s, sufficed to show me clearly that a deep recession was due to hit with exceptional force approximately February 1957. It happened then exactly as I had warned. This success became the model of reference for the form of construction of my first long-range forecast, made in 1959–60, of a probable deepening U.S. recession during the late 1960s, *unless*, first, the current (pre-President John F. Kennedy) trend in policies were reversed by the middle of the 1960s, and, unless, second, a few years later, that the wrong post-Kennedy policy-drift were reversed by about the beginning of the 1970s.

In effect, the assassination of President Kennedy, coupled with what had been the ouster of Britain's Macmillan, also with the British and German Liberals' pushing out of Germany's Chancellor Konrad Adenauer, and also the repeated, earlier, and later, attempts at assassination of President Charles de Gaulle, typify the way in which Anglo-American, and related continental European policy-making practices were changed, for the worse, from that time onward. The changes shaped by 1962–1964 developments of this pattern, led to the 1968–1971 economic crisis which I had then foreseen as an approximately, early-1970s effect. The effect which actually came as the result, was the 1971–1981 collapse of the U.S. dollar and what proved to be the worse, correlated outcome: that poisonous cultural phenomenon of the so-called "68ers," with their neo-malthusian hatred of progress, which all amounted, in effect, to a catastrophe-in-the-making, from which the world gripped, at large, by monetary inflation, has never actually recovered, up to the present date.

These forecasts of mine were the result of exercises made explicitly according to the principle of dynamics, that of both Gottfried Leibniz, and that of the Bernhard Riemann on whose work all of my forecasts to date have been premised as in respect to scientific method. This has been a method of forecasting which not only echoes Leibniz's and Riemann's method of

dynamics, but, also, the argument which Percy Shelley presented in the concluding paragraph of his *A Defence of Poetry*. That concluding paragraph from Shelley's work, may be considered as the true, deepest "secret" of both competent economic forecasting and related statecraft, a secret which has remained unknown to virtually all of the leading governments and universities of the world today. This argument is also the "secret" on which the immediate survival of global civilization depends today.

What I have written here so far, already goes a considerable distance toward suggesting the direction of my thinking. The point is, that that method, which I have employed, over decades, for forecasting, exposes the way in which governments and other relevant parties have come to their present, ruinous habits of thinking, as academics, or, otherwise, the bad habits, fit for deposit in a bad bank, which are the essential, proximate cause of the great crisis which menaces all civilization, immediately, today.

Those Were the Preliminaries

It was the adoption, as by Wall Street influentials, of the self-destructive, Liberal ideology traced in origins to the Liberalism of Paolo Sarpi and Adam Smith, which, by replacing the protectionist principles of the U.S. Federal Constitution, has caused the recent decades' dive of the

U.S.A., and most other nations of the world, toward a "new dark age." The recent decades' result, has been the harvest of the rotten fruit of that season of that more recent, new wave in the Anglo-Dutch Liberalism which has abounded increasingly in Trans-Atlantic and some other cultures, since the middle of the 1960s. This Liberal ideology which has ruined us, has been most often expressed in a relatively more conspicuous way, by the tendency of people, and their nations, to react to the passage of time by stubborn efforts to impose a willful, foolish kind of practice, even mere fads, rather than seeking out the necessary changes in their mental habits, as individuals, or groups of persons, changed habits which would be an appropriate response to the existing and oncoming situations.

Those fools said, in effect: "This is my culture!" "This is our tradition!" Fools said, in effect: "This is the way we have dumped the traditions, such as those of Benjamin Franklin and Alexander Hamilton, which we had adhered to in the past." Our fools said: "This is my circle's opportunity to impose our way of thinking at the expense of those who tend to think and act differently!" "You will see! We are going to come out on top, whatever it takes!" Such is the pathetic whimpering we hear from leading circles inside the U.S.A., in the capitals of western and central Europe, in a confused government of a Russia guided by London-steered, "sub-prime" Minister Kudrin, and elsewhere, today.⁵

⁵ Despite the immediate confirmation of the warning delivered in my July 25, 2007 forecast of an onrushing, global general breakdown crisis of the existing world economy, and despite the skyrocketing, and most dramatic

To describe such people, or groups, as being reasonable, would be to insult their native intelligence. Their inclinations have had more of the character of the stubborn ways of a self-doomed species, like as the salty Biblical folk of Sodom and Gomorrah, than actual human beings.

Today, the follies of Sodom and Gomorrah are echoed by what is called “environmentalism.” Indeed, there is no better way to ensure the overheating of the environment than to turn the planet into a deadly wasteland by covering vast acreages with silly windmills and worse solar receptors.

Here, in reality, we are not actually threatened by “global warming,” unless solar receptors and windmills could bring that result about; we are, in fact, on the verge of the cyclical advent of a threatened new increase of that continuing ice age which has been in a process, typical of such developments, of flowing and ebbing, back and forth, on this planet, that for what may be estimated, for purposes of our discussion, as an estimated two millions years, whereas what have been recently the leading currents of economic policy-shaping, are committed to so-called “free energy” policies which would, if continued, transform the planet into a desert, and bring on the intended (as by London’s Duke of Edinburgh) collapse of the world to a world degraded to such a state of brutish human populations, all that according to that “salty, bad Lot” Duke’s avowed intention to reduce the world’s population rapidly from over 6.5 billions to less than 2 billion persons. Sodom and Gomorrah all over again, but, this time, on a vastly wider, and much more sinful scale.

The evidence is clearly available; but, many people deny these facts, nonetheless, because they have been brainwashed into the inherently tragic, neo-malthusian mythologies of the Olympian Zeus of Aeschylus’s *Prometheus Bound*. The older generation of malthusians, those from the ranks of the “68ers,” required the lies they told themselves, and also others, to induce them to adopt neo-malthusian mass-murderous policies for the planet at large. A younger portion of these present-day pro-malthusian generations than those “68ers,” has no evidence, but only their own, fanatically insane wish to believe. The latter are, in effect, clearly insane, victims of the epidemic mass-insanity which, taken together with George Soros’s legalized drug-trafficking, is presently, the greatest of all particular forms of endemic threats to mankind throughout this planet.

evidence in support of that forecast throughout the entire span of developments through the present date, Russia’s government refused to acknowledge this reality through December 2008, while “sub-prime” Minister Kudrin has just announced a perspective which is frankly insane in its presumptions and conclusions, and potentially suicidal for Russia as a nation. This development has been under careful, global study, as a matter of strategic counterintelligence, in U.S. interests, against the British empire, for some time. I do not speak idly in these matters.

Similarly, during the middle to latter part of Europe's Fourteenth Century, financial practices like those adopted by contemporary London and Wall Street, plunged a Europe dominated by the Venetian usury of that century's Lombard League, and all of Europe, into the worst "new dark age" of the medieval period, a world-wide "dark age" of the type presently onrushing to the brink of a general, chain-reaction, planetary collapse, today.

The point which I am emphasizing, and must emphasize, here, is to be recognized as a certain principle of physical science.

II. Mankind's New Age of Reason

Looking backwards in time, for a view of the way in which the recent advance of science and related practice (including visits of our captive scientific apparatus to Mars) has brought us to the verge of beginning to manage the Solar System today, the most relevant fact in the history of science, is the degree to which—*when science prevails over un-science*—mankind's power in and over the universe is increasing, as a trend. This progress should be viewed as translated not merely into the form of mankind's increased power, but, more emphatically, mankind's responsibilities.

This point which I have just made here, is an updated definition of the practical meaning of the term: "*a physical science of human ecology.*"

More than ever before that time, the outcome of progress in this direction had been indicated by, most notably, earlier, Nicholas of Cusa, Johannes Kepler, Pierre de Fermat, Gottfried Leibniz, and, later, Bernhard Riemann, and, later, by the leading scientists of that subsequent age of Planck, Vernadsky, and Einstein, which was introduced by Riemann's 1854 habilitation dissertation. This legacy of science, has given us a recent, and continuing new meaning to the competent use of the term *science* itself.

We have thus, with the impact typified by Riemann's habilitation dissertation, entered into a new phase of what must be termed "universal history," that in the sense of the most profound implications of that name. In this fresh view of modern universal history, we have moved from belief in the Solar system as acting on man, to Promethean man's acting according to the principle of *Genesis* 1, to change the universe as we know it, and as we must guide our practice of mankind in that direction.

In my method of forecasting, I emphasize the relevance of the existence of a certain kind of moving point on the relevant statistical scale. That point has the character of a physical function, rather than representing the fruit of a simple statistic. The "point" has two aspects. First there is the concept of a net increase of a society's potential relative population-density, as measurable per capita and per square kilometer of relevant territory. So, secondly, we are

interested in knowing that which determines the rate of increase of that potential relative population-density. We are properly concerned with the net rate of increase of that potential over time.

That presents the idea of the implied measurement in a general preliminary way. Better were to start from Vernadsky's notions of the respective pre-biotic domain, the Biosphere's domain, and, then, the Noösphere's domain. We are, then, concerned with the rate of increase of the human potential relative population-density as measured against that value's implied, prerequisite, abiotic domain, and Biosphere preconditions for that current rate of increase of estimated potential relative population-density.

The rate of estimated current rate of net increase of potential relative population-density for a society as a whole, then defines an implied standard for the measurement of physical, as distinct from "clock" time.

The notion of that preliminary approach to estimating the function for increase of potential relative population-density, then implies a rate of interaction between human existence and changes in the portion of universe within which the increases in rate of net increase of potential relative population-density are situated.

As we attempt to refine this calculation, the complications with which we are confronted, increase: first, within the immediate bounds of Earth and its local Solar-system environment, then Kepler's Solar system, and so on, outward and deeper. Then, we encounter theology, but in a certain fashion. Turn to the pages of *Genesis* 1, and look at that chapter's content in the fashion of a Moses who was able to walk in, and then out of the Pharaoh's palace with, considering his messages of a new round of pestilences delivered, an apparent impunity which Moses enjoyed, in coming and going on those occasions, and in that implicitly perilous fashion. Then read *Genesis* 1 again, but not as the devotees of Aristotle might have done later, or the Elmer-Gantry-like "fundamentalists" of today.

Contrary to the putative Aristotle known to Philo of Alexandria, the Creator actually did generate the universe (after all, it does really exist in the quality of something which has been, and is being created!), and according to Moses, man and woman are "made in the likeness" of that Creator. Moreover, if it is the real universe that we are discussing in that way, the real universe as we know it, is *in a process of continuing creation*. That means generating higher states of existence than could be adduced from an existing state of existence. That means, contrary to the hoaxsters Clausius, Grassmann, Kelvin, *et al.*, the universe's form of continued existence is *anti-entropic*, not some silly system under the imagined rule of universal entropy.

We also observe that man and woman, unlike all lower forms of life, are, in fact, *creative* in that ontological sense of anti-entropy. Since Moses is referring to man and woman, he intends to convey the idea that the Creator represents, or should represent, continuing creation in the image of his servants, man and woman. Philo of Alexandria, the friend of the Christian Apostle Peter, said as much against the Aristotelians of the known historical time of Jesus and his Apostles. As a great, recently deceased rabbi insisted to me: *The Messiah will not arrive according to the likeness of a train-schedule, but when the Creator decides.* The implication is the worshiper's reaction to this advice: "Please come, as soon as possible!"

(It is necessary to approach subject-matters of that type with a special quality of humble tone of affection.)

Put the line of discussion I have been employing in this chapter thus far, as follows. For the next minutes, I will postpone the subject of physical-economy as such, in order to prepare some essential elements of physical-science background, within which terms I shall then situate the subject of physical economy as such, and, after I have presented that crucial scientific material, we shall then turn to the matter of the role of monetary values within the setting of the principles of physical economy.

The Relevant Case of Helen Keller

So, that much said as preliminary, turn to the core of the science of the matter.

As I have been reminded by an associate who reminded me of Louis Pasteur's point about scientific method, the true evidence of the experienced existence of physical time, as distinct from clock time, is to be located in a category of phenomena which prove the existence of something not only exceptional, but ostensibly contrary to all that has seemed usual.

So, in the case of the discovery of the notion of physical time, reference to the exceptional implications of the famous case of Helen Keller, implicitly forces the thoughtful discoverer to see the way to bridge the gap between time, as located in *a-priori* notions of sense-certainty, and the reality, which is that physical reality, rather than clock-time, which exists in the unseen domain of a physical actuality.

This comparison is suggested by looking back to crucial features of Kepler's original discovery of the general principle of Solar-system gravitation, which occurred, as Kepler accounts for this, through the sense of the ontological irony of seeing and hearing (harmonically) the organization of the Solar system. Once we recognize that Kepler's uniquely original discovery of a principle of gravitation, expresses a method of thinking which carries over into all profound physical discoveries in general, we will have taken the first step toward access to a sense of physical-scientific certainty in the matter of physical time.

First of all, such intellectual experiences as those, of the principle of irony specific to the experience of principles underlying the phenomena of space-time. Or, as the same thought appears as the concluding sentence of Bernhard Riemann's 1854 habilitation dissertation: *we depart the department of mathematics for physics.*

Once we accept what should be the obvious fact about the all-too-obvious, our sense-experiences, as such, that sense-perception as such is merely the instrumentation of the real universe we are experiencing, we have touched that threshold of valid science known, explicitly, to the greatest among our modern scientists, such as Kepler, Leibniz, Riemann, and Albert Einstein. As in all competent experimentation, actual knowledge is the product of the mind's power to synthesize that efficient, but unsensed reality, the which we must adduce from the mere phenomena. Thus, honestly competent sense requires the construction of a kind of intellectual "bridge" to what must become known, but is not sensed: one might suggest the example of the catenary, the funicular bridge which was essential for Brunelleschi's successful construction of the cupola of Florence's *Santa Maria del Fiore*. My own personal discovery, while an adolescent, of the anti-Euclidean principle of physical geometry, is an example of the same principle of all actually scientific knowledge. *Knowledge of a principle is never an intellectual fantasy; it is an idea whose action enables one to produce a unique kind of actual (e.g., "crucial experimental") effect, but one which had been previously unknown within the scope of previously known principles.* In that sense, all physical science is experimental, that in the sense of what Riemann identifies as the quality of *unique experiments* specific to discoveries of physical principle.

Such was the quality of the relevant achievement in Albert Einstein's recognition of the unique validity of the original discovery of the principle of gravitation, by Kepler. That said, we have thus placed ourselves in the proximity of an added discovery, the discovery of the concept of *physical time*.

So, as I have pointed out on numerous occasions, we have the case of Kepler's uniquely original discovery of *the physical principle of gravitation*, which is reported by him in his *The Harmonies of the World*. That, Kepler's method, for example, is the way we may actually know a true physical principle, as distinct from the pathetically contemplative act of merely choosing to believe in "a merely mathematical explanation." The present need to define the concept of physical time, presents us with a challenge of that same type.

For example, how did Helen Keller conduct dialogues involving ideas, in her special way, with persons she could neither see, nor hear? Kepler's uniquely original discovery of gravitation, provides an implied illustration of the same method expressed by that Helen Keller. Now consider Kepler's discovery in such terms of reference. Then, consider, in that

light, how the method expressed by the method of discovery by Kepler is to be applied to the matter of the notion of physical time.

There is another, kindred sort of consideration to be emphasized afresh at this immediate juncture.

All valid discoveries of universal scientific principles, occur as discovery of something which exists efficiently, but as if outside, and above previously established conceptions. The ideas of physical space, as distinct from open space, or physical time from clock time, are examples of this. Hence, the dynamics of physical-space, rather than space, and of space-time rather than clock time. So, in the case of Kepler's discovery of gravitation, we have physical space, rather than Euclidean or Cartesian space. So, we have the case of physical-time, rather than clock time. These are not matters of verbal hyphenation; consider what it is which they reflect, in each such, or comparable species of instance.

Think of what I have referenced above, as the case of Louis Pasteur. In Kepler's discovery of gravitation, it is the juxtaposition of what are, conceptually, the relative incommensurables of the notions of sight, and of the harmonics of hearing, which are combined by Kepler's mind to form, as if by some higher quality of irony, the mentally visible, a physically efficient shadow of a universal physical principle of gravitation.

That said, return attention to Helen Keller's insight into the thinking of another person. When we are enabled to recognize the common implication shared among the variety of cases which I have just identified above, that when they are considered as a subject-matter of some general principle, we have the first general approximation of the kind of thinking needed to grasp, accurately, the concept of space-time. We now proceed from that point as follows.

I shall now deal with that notion in those limited terms. Subsequently, I shall address the deeper implications at a later point in this present report.

Anti-Entropy: Dynamics in Space-Time

The discovery of experimentally validatable principles of nature, begs for the notion of some demonstrable ordering-principle in the configuration among those principles. The appropriate reply to that implied question always comes back, sooner or later, to the fact that what we are enabled to recognize as the ordering among the principles of such a sought-for configuration, lies within the human mind. It is not necessarily a copy of the biology of the human brain, but, assuredly, a reflection of the process expressed as man's increased power to exist in the universe.

In general, in this location, it is permitted, and most convenient to take a few short-cuts in illustrating the point immediately at hand.

One of the most convenient of those short-cuts, is to be found in considering the evidence bearing on the relative “negative entropy” of effect, as man’s use of heat-sources moves upward from incident sunlight at the surface of the Earth, through burning of simple fuels, into coal, coke, petroleum and natural gas, into nuclear fission and thermonuclear fusion. It is not the number of calories that defines the relative power to do work, but, rather, the density of that power to do work, expressed in units of heat-equivalent, that measured per square centimeter of cross-section of the flow of the heat-process being considered. Compare this with the cases of the species-fertility of not only the orders and species of animal life, but of varying combinations of species sharing in the dynamics (that in the sense of Leibniz and Riemann) of a particular sort of habitat.

However, such illustrations put aside, our crucial concern at this point in the report, is, as Leibniz exposed the fraud of Descartes on the subject of physical space-time, is, as Leibniz showed the need to focus attention on the order of increase of the power of the effect which is expressed by any specific dynamic system of mankind to exist.⁶

There are two considerations posed here. One, is the order of matters in the universe, relative to mankind, on the presumption that this order pre-exists. The other, is posed in the form of a question: to what degree does discovery go further than discovering the usefulness of pre-existing principles in the universe, or his local portion of it; is mankind actually generating newly added universal physical and related principles in this universe? To what degree is a discovery merely a discovery, and to what degree is the very existence of a discovered phenomenon a product of the creative powers of mankind? In other words, does the practical existence of the discovered principle exist with the adoption of that principle of action by mankind? The result of the progress of mankind in exploring the domains of nuclear fission and thermonuclear fusion, poses exactly such general types of new forms of questions for modern science, still today.

The desire for some form of ordering-principle amid the evidence to be considered along those lines, a desire which such thoughts engender, is a mark of the passion which motivates true discoveries of those principles which are not sensory objects themselves, but which produce the form of movement of sensory objects.

Such is the form of the argument which leads toward comprehension of the notion of physical space-time. For a very significant reason, this conception can be reached only from the vantage-point of understanding ourselves as being uniquely creative individuals, that in

⁶ Leibniz, “Critical Thoughts on the General Part of the Principles of Descartes,” (1692) and in “Specimen Dynamicum” (1995) Loemker, ed. (Dordrecht/Boston/London: Kluwer Academic Publishers, 1989).

the sense of Riemann's admonition to leave the department of mathematics that we might finally understand the true principles of physics. The reason is that, among all creatures, only the human individual is capable of the creative reason on which all truthful discoveries of principle depend absolutely. That much said up to this point, we proceed now, as follows.

Keep that suggestion in mind. We shall consider it from a higher standpoint a bit later.

Take one of the simplest instances of the essential distinctions which draw a line between sane and moral persons on the one side, and the bestial sort of oaf on the other.

The Irony of Being Human

One of the ways in which to express the difference of man from the beasts, lies in the fact that the beasts, composing a dynamically defined bit of ecology, can temporarily overrun a normal, dynamic limit for a set of species cohabiting an environment; whereas, any healthy form of human society, tends toward a voluntarily permanent outrunning of any ecological limit which might be attributed to a mankind seen in terms of the notions of animal ecology. This distinction is expressible in terms of a contrast between what would be named, in relatively popular terms, as *a relatively fixed ecological potential* (i.e., *entropic*) for that population, as opposed to the inherently anti-entropic characteristic of any naturally healthy culture of the human species.

So, since the still continuing 1967–68 downshift in the ratio of new infrastructure to the depletion of formerly established infrastructure, there has been a relative long-term decline in the physical economy in the U.S. economy. There was the downshift of this sort which dominated the 1968–1974 interval in the U.S. economy, followed by a greatly accelerated margin of decay and decline under the 1977–1981 term of the U.S. Carter Administration. The attrition continued, under a continuing influence of the Trilateral Commission during 1981–1987, but a steeply accelerated, further decline from the October 1987 echo of that 1929 stock-market-like crash which was followed by the still steeper decline of a collapsing U.S. economy, over the 1987–2007 interval.

This successively accelerated rate of decline, over the 1968–2008 interval, when seen in physical-economic terms, is fairly described as a turning back of the clock of human physical-economic and cultural development of the U.S. population (among others) in general. In effect, the clock of economic development, was running backwards. There has been an accelerating rate of decline of the U.S. economy and of the culture of the U.S. population, over that entire interval. *An extremely important kind of statistic!*

Unless we act to reverse that ratio of declining cultural human creativity interacting with decay in the basic economic infrastructure of society, mankind is going backwards.

This is not merely a correct statistical picture. The statistical picture, is a symptomatic correlative of the decay in the cultural morality of the society undergoing such a form of ongoing decadence. As I have described effects, the related question is, “Effects of what cause? Effects of what kind of action?”

The immediate answer by most thoughtful respondents to that challenge from me, is that it is this pattern of decline over the term of President Harry Truman, the continuation of the actual decline leading into the 1957–59 recession in the U.S.A. and in the United Kingdom during the 1950s, the decline in Europe in the late 1960s, the different modes of decline of the trans-Atlantic society during the 1970s and 1980s, and the accelerated, ultimately catastrophic decline of the 1989–2009 interval to present date.

The solution for that paradox, lies in a voluntary quality of the human personality which does not exist as a voluntary capability in any living creature but the human individual. This voluntary capability is what is properly identified as the creative powers of the human individual type, powers which do not exist in any other form of life. Here lies the distinction of what Academician Vernadsky identified as the true meaning to be assigned to the term “Noösphere,” as distinct from the involuntary creativity which occurs as a dynamic potentiality (upwards genetic shift in evolution) within the lower forms of life.⁷

III. A War for Modern Scientific & Economic Creativity

Before getting to the core of what I have to say in the following, concluding chapter of this three-part presentation, I must prepare the way by reporting on something as a matter of relevant autobiographical background respecting the crucial point which I have to make before completing this chapter of the report.

My earliest commitment to Gottfried Leibniz, which occurred during my adolescence, and was expressed by a product of intensive study on every bit of Gottfried Leibniz to which I had access at that time. By early 1953, I was committed to the principles of Bernhard Riemann’s 1854 habilitation dissertation, and some related writings. The entirety of my professional commitment to a science of physical economy, has embodied that commitment to the concept of history, from that past time, in my adolescence, to the present moment.

Some decades later, about 1977, I came to adopt the work of Cardinal Nicholas of Cusa in his included role as the author of the founding of the modern science of such of his followers as Leonardo da Vinci and Johannes Kepler, and, thus, of the current of modern physical science which is typified by Pierre de Fermat, Christiaan Huygens, Gottfried Leibniz, and such Leibniz followers as Jean Bernoulli, Lazare Carnot, and, especially Bernhard Riemann.

⁷ Contrary to the statisticians, biological evolution is not statistical in nature.

The recognition of Cusa as the actual founder of the general principles of a competent modern physical science came about through my wife Helga's participation in a conference of the Cusanus Gesellschaft, and my ensuing proposal to her that she pursue her proposed doctoral preparation with emphasis on Cusa's work.

This attention to Cusa opened up my view of the whole sweep of modern European science, prompted by the work and role of Cusa and his immediate followers at the center of that process. It is when we trace the founding of competent modern physical science around the central figures of such followers of Cusa as Leonardo da Vinci, Johannes Kepler, and, also, Pierre de Fermat: that the entirety of the work of such as Christiaan Huygens, Leibniz, and Jean Bernoulli, opens up for us in a much richer way than before, richer because we are thus better equipped to re-experience, rather than merely interpret, the relevant process of development from Filippo Brunelleschi, Cusa, and so on.

The particular relevance of that piece of background material in this present report, is that the comprehension of the relative superiority of the European Fifteenth and Sixteenth centuries' progress in scientific fundamentals, provides the occasion to understand more clearly, the elementary nature of the sheer fraud represented by that influence of Paolo Sarpi on which the subsequently dominant trends in leading forms of principled corruption of modern science were premised, as from the Seventeenth-Century of Sarpi, Galileo, Descartes, and Abbé Conti onward. This conflict is essential to a clear understanding of the practical significance of the concept which is the focus of my attention here, the concept of *physical time*, as distinct from *clock time*.

For making this point and its relevance clear here, one should start with the uniquely original discovery of the Solar system's governing principle of universal gravitation as discovered by no other discoverer than Johannes Kepler. In this matter, Kepler's adversaries Paolo Sarpi and his lackey Galileo, turned the clock of science backwards, in more ways than one. We must reset that clock, by proceeding as Albert Einstein understood, and emphasized the discovery of that principle of universal, physical space-time, which was to be promoted by Einstein himself. This was a discovery of principle, which had been on the knife's-edge verge of being identified by that work of Kepler completed just before his death from starvation. No other person than Kepler had actually discovered the principle of gravitation, then, or until the work of Bernhard Riemann produced the crucial changes which erupted at the outset of the Twentieth Century.⁸

⁸ The form of the principle of general gravitation, as discovered by Kepler, was not discovered by Isaac Newton. It was copied by the circles of the controllers of Newton from the previously published edition of some Kepler work. All that was added was a factor actually provided by the circles of Huygens and Leibniz. As John Maynard Keynes proclaimed, on opening the mysterious secret chest of Newton papers, Newton discovered absolutely nothing of scientific interest, but chiefly just "black magic" of the witchcraft style.

The story which needs to be told, at least in brief, here, is the following.

Kepler's Discovery

The success of Kepler's discovery of the principle of universal gravitation, depended upon recognizing what lay in the functional intersection of two types of phenomena. One, was a mental image of the universe based on transforming the data into the terms of visualization of the image of their set of Solar orbits. The second, was conceptualizing the periodicities, which are distributed dynamically, among the sets of orbits in the fashion of musical harmonics, as the notion was seen by the specific succession of the Pythagoreans and Plato.

The challenge which came to be posed, thus, by the large accumulation of required studies of the orbits, posed, for Kepler, an image of that evidence which corresponded to an ironical juxtaposition of the image of vision and the images of musical harmonies. In short, vision and harmonics, as the instrument for study of the characteristics of the orbital system, became the principal illustrations of the experience to be resolved into a single conception; they identified the set of contrasting instruments whose paradoxical juncture served as the combinations needed to adumbrate the reality of gravitation itself. The use of instruments to investigate a set of phenomena which can not be regarded as being in itself a direct representation of the phenomenon being experienced, is not an unusual challenge in any work of discovery of principle in the domain of physical science. It was from this view of the evidence, evidence treated in this way, that Kepler discovered the principle of gravitation which was later fraudulently coopted as "Newton's discovery."

As I shall point out in this report, Kepler's insight into the existence of an unseen, unheard, but efficient, universal principle called universal gravitation, brought Kepler to the brink of a next step which would have established the concept of a physical universe, as ruled by a principle whose efficiency could not be premised on any specific human sense-organ, and which, therefore, could be known to the senses only through a certain quality of conflict between asymmetrically juxtaposed, relevant sense-experiences: which is to say, this array functioned as a physically efficient object of the human mind, not directly represented by any single sense-experience.

Such a discovery by Kepler, which we can recognize as having been implicit in his declared discovery of the principle of universal gravitation, was implicitly at the edge of the basis for discarding the notions of absolute space and absolute time, that in favor of *physical space-time*.

Those were conceptions which lurked, as shadows of a coming future discovery, in the discovery of refraction by Pierre de Fermat, and in Gottfried Leibniz's fulfillment of a challenge left to "future mathematicians" by Kepler. Such was, the calculus whose discovery,

by Leibniz, was delivered in proof to a Paris printer sometime between 1775–1776. Why, then, did the discovery of relativistic physical space-time wait until the announcement of Albert Einstein in the middle of the first decade of the Twentieth Century?

Ironically, Kepler had been in correspondence with the musician Vincenzo Galilei, the father of the notable Galileo Galilei, for assistance in collecting information on the musical scale and related matters. Kepler's purpose in that exchange was to compare the musical intervals corresponding to the characteristics of the Solar system's orbits. So far, all seems good, until the intervention of Galileo Galilei, who used information which he drew from Kepler's correspondence with Vincenzo. There was an ugly irony in this. Galileo Galilei was an agent of the notorious Paolo Sarpi, who was the founder of all modern Liberalism, and an adopted follower of the medieval irrationalist, William of Occam.

The drama in fact which was represented on the stage of the history of empiricist science, by the players Kepler, Paolo Sarpi, Vincenzo Galilei and his son Galileo, is the key to understanding the source of the apparent difficulty which Einstein appears to have encountered in addressing the concept of physical time.

This Eighteenth Century's controversy over the issues, had been a problem which has continued to plague all of modern science since the Seventeenth-century influence of, most notably, the Liberals Sarpi, Galileo Galilei, René Descartes, Abbé Antonio S. Conti, and, later, Voltaire. All of these persons overlap, as Galileo is a creature of Sarpi, Descartes is a product of the doctrinal influence of Galileo, Conti is a devotee of Descartes and a key creator of the largely synthetic personality of Isaac Newton. Conti, and Voltaire, *et al.*, are all collaborators in running a European network of Leibniz-hating salons featuring Abraham de Moivre, d'Alembert, Leonhard Euler, Euler's protégé Lagrange, and their followers Laplace and Augustin Cauchy. The key to all of them is Paoli Sarpi, the father of all modern European and related (Ockhamite) Liberalism.

However, it would be foolish to believe that those connections are merely connections. They are all bound together by a dynamic quality of common tie which defines them, each and all, as, functionally, a single thing, a species as common to all, as that of a kennel of dogs of the same breed. What unites all of them from the time of Conti's arrival in Paris and proclaiming himself as a Cartesian, is their determination to destroy, first, the influence of Nicholas of Cusa, Johannes Kepler, Fermat, and, then, Gottfried Leibniz. During the course of the Eighteenth Century, especially after the death of Leibniz, they were gathered around, first, Conti, and by the time Conti died (in 1749), Conti's follower Voltaire.

The common feature of all of them, was manifest by their common motive, their commitment to the eradication of the influence of Cardinal Nicholas of Cusa and of

Gottfried Leibniz. The issue was the Leibniz infinitesimal; the more deep-rooted targets were Cusa, and Cusa's avowed followers Leonardo da Vinci, and Kepler.

The Role of Religious Warfare

Since Babylon, all of the known empires based in the land areas encompassing the Mediterranean Sea, have been based on the same principle of method which Edward Gibbon recommended to his patron, Lord Shelburne, the method of the infamous Roman emperor known as Julian the Apostate. It is the method expressed by the Pantheon of Rome, and by no means a tactic restricted to the wretched Julian; what is called "The British Empire" has always used religious conflict or comparable cultural hostilities as the way to rule, by pitting one subject—one religious faction, one social stratum, one ethnic origin—against the others.

All of the major wars in modern society have been based on the expression of the method of religious and related warfare, as this was introduced by the Spanish and Austrian Habsburgs during the religious warfare of 1492–1648, used by the dupes of Paolo Sarpi to organize the wars which engaged France's foolish Louis XIV, the Seven Years' War, and by Napoleon Bonaparte, later. Britain's organizing of what became known as World War I, was initially organized by Prince of Wales Edward Albert, organized by causing the ouster of Germany's Chancellor Bismarck, then arranging the assassination of France's President Sadi Carnot, and then enlisting the Mikado to launch the Japan warfare against China which continued, with some very temporary interruptions, until Summer 1945. The decisive action by London in this process, was the assassination of U.S. President William McKinley, an assassination whose featured effect was to cause the United States to change sides, from prevalent popular sympathy for Germany and Russia, to favoring Britain in World War I. Out of World War I, came the Sykes-Picot arrangement, under which the British Empire has kept the religions of Southwest Asia at one another's bloody throat to the present instant.

This use of orchestrated religious and related conflicts, was not new. It was what the Empires of the East had done. It was the method of the Roman Empire and the Byzantine Empire, and was the method of religious warfare through which the Venetian financier controllers of the Habsburgs ruled Europe from the relevant point in the Fourteenth Century, with only a relatively brief interruption, until 1648. Furthermore, it was the British who organized what became known as "World War I" as a replay of the British orchestration of the Seven Years' War, and as a replay of the way in which London used the fool Napoleon Bonaparte to unleash the more than a decade and a half of continuing general warfare on the continent of Europe, a continuation of Napoleonic wars of sheer economic looting, by means of whose effects the British Empire's reign was secured until President Abraham Lincoln led the victory over the British organization of a Civil War inside the U.S.A. itself.

It was not warfare alone that enabled empires to run for as long as they did. The siege of Troy was such a case. The Peloponnesian War was another. So was the folly of the Achaemenid Empire, in a war which was won by Alexander the Great after he went to his mother's people, in Cyrenaica, to organize the revolt, against Persia, in Egypt, which enabled Alexander to conquer Tyre and thus take over the Persian Empire.

So, in recent decades, Britain sought to destroy the United States by inducing the U.S. to forge a fraudulent pretext for entering a long, ruinous war in Indo-China, and so the evil British Prime Minister Tony Blair induced the foolish U.S. George W. Bush administration to take a course which wrecked the U.S.A. military, and the U.S. economy, by an unnecessary, ruinous long war in Southwest Asia. It is no surprise that former Vice-President Cheney was not acting as a patriotic American in luring a nasty and befuddled President George W. Bush to ruin the U.S.A., by luring the silly Bush into embracing Blair's fraudulent actions luring the U.S.A. into the ruinous long war in Southwest Asia. Similarly, the singularly unpatriotic Cheney was still trying to get Israel to destroy itself in an attack on Iran, practically up to the very last weeks of the now concluded Bush administration.

Similarly, actual and would-be imperial systems have used their orchestration of religious conflicts, to maintain control over the interior of an empire, which is why the largely brutalized, British population itself is, largely, so terribly unskilled, badly educated, and economically incompetent today, and why the anglophiles inside the U.S.A. have done so much to attempt to stupefy the U.S. population, as much as possible, by deindustrializing the U.S.A. through exporting our production to cheap labor markets, spreading drug cults inside the U.S.A. and abroad, and making our nation's education and popular culture itself a farce.

Such were the considerations which guided Paolo Sarpi and his accomplices in launching their program of stupefying the people of Europe (in particular) into a state like the condition of the people of England which came to be described so aptly by Jonathan Swift's *Gulliver's Travels*.

The 1618–1648 Warfare

That much said on those historical matters, now consider the strategic crisis which confronted the Habsburg rulers in the rise of the effects of that Great ecumenical Council of Florence led by such figures as the founder of modern physical science, the same Cardinal Nicholas of Cusa whose commitment to transoceanic outreach inspired the initial trans-Atlantic voyages of Christopher Columbus.

It was on this account that the Spanish Inquisition was launched as an international effort, that virtually in the same year as Columbus' first voyage in exactly the opposite geographic direction.

The relevant irony was that the intellectual revolution unleashed by the Fifteenth-Century Florence Council, had already begun to produce a great cultural uplifting of the people in Europe, as in Spain, Germany, France, and the Netherlands, which prevented the medieval-minded forces, under the Habsburgs, from securing durable victories over effectively determined resistance by the targeted populations. By the time of the close of the strategically disastrous Council of Trent, the Habsburg cause was effectively pre-doomed.

At that point, Paolo Sarpi had seized the opportunity created by the follies of Trent, to mobilize a rapidly growing political force in support of his new alternative program. He, in effect, at least, elected to virtually write off the cultures of the Mediterranean coast, and move his financier faction and its resources largely away from the Mediterranean littoral, to maritime bastions along the northern coasts, where the Protestant factions would be relatively dominant.

By the time of the end of the Council of Trent, it was already clear, as Niccolò Machiavelli, who had become the great strategist of his time, recognized the factors which showed that the Habsburg forces must tend to be defeated in the long run. The relevant factors included the effect of the Council of Florence in promoting the development of the culture away from the follies of the Thirteenth and Fourteenth centuries. This development included the technological improvements which were promoted by Nicholas of Cusa's leadership in science and related elements of statecraft. The new conditions were to be seen among the populations of the cities whose culture had been influenced by the Renaissance, which had made those populations a new kind of strategically effective factor, as Friedrich Schiller's analysis of the war in the Netherlands and the Thirty Years' War had shown. Schiller's strategic insight was crucial then, as it was in guiding Scharnhorst's and related circles in designing the strategy which would, and did, defeat Napoleon Bonaparte's war against Russia.

Sarpi, for his part, not only recognized, but was determined to exploit the fact, that the danger to the cause of the Venetian usurers' faction in Europe, lay in the progress of the population of Europe under the influence of the Renaissance and the consequent victories of Louis XI in France and his admirer, Henry VII in England. Sarpi's threatened dilemma was, that the northerly part of the Venetian interest would lose control of Europe if it accepted the Habsburg policy of suppressing the waves of scientific and technological progress which the Renaissance had unleashed; but, that it was to lose the fight in another way, if it permitted technical progress to be led by scientific progress of the type which the work of

Johannes Kepler (in fact) typified. Sarpi's choice of middle ground, was to permit a certain degree of technological progress, of the types already under way in England and the Netherlands, but that Sarpi must lose if he did not prevent some degree of technological innovation from being a subsumed feature of the fundamental scientific progress which Cusa, Leonardo da Vinci, and Kepler typified.

So, Sarpi had dumped the Council of Trent's Aristotle, the prince of ancient and medieval darkness on that occasion, to allow some technological progress, but not to tolerate lightly a program of actually scientific progress in respect to principle.

The issue became acute for Sarpi's faction, when Cardinal Mazarin succeeded Richelieu in France. Mazarin initiated the feasibility of the 1648 Peace of Westphalia, while Mazarin's protégé, Jean-Baptiste Colbert organized support for a massive program of building an infrastructural and science-driver program for France. But, the foolish King Louis XIV fell into the trap of prolonged wars, and the British won the war through wars of the type culminating in the Seven Years' War. So came that establishment of the British Empire, as a private empire of the British East India Company under Lord Shelburne's leadership.

After the 1648 Peace of Westphalia, there were now three principal, mutually opposing strategic forces in Europe: the old regime, associated with the greatly weakened Habsburg interest; Sarpi's faction; and, centered in the France of Jean-Baptiste Colbert, the economic and social policies which were the outgrowth of the renaissance associated historically with the circles of Cardinal Nicholas of Cusa and of such followers of the Cusa initiatives as France's Louis XI and England's Henry VII.

The fight was now centered, essentially, between the movement centered in the France of the policies of Mazarin and Colbert, against what was to emerge as the new composition of the enemy faction, the faction now organized around the Anglo-Dutch Liberal followers of Sarpi and Rene Descartes.

The Real World War Today

In the meantime, Sarpi and his followers proceeded with an increasingly vigorous war of empiricism against real science. The fake Anglo-Dutch science of brutish William of Orange, was summoned to that cause; with the death of Queen Anne, brutishness was the reality of the British Flag. The addled Isaac Newton was summoned to carry the guidon, which perhaps was all he was good for, and thus to lead the dupes to battle for the cause of empiricist imbecilities. The 1689–1763 defeats of France and of the American forces centered around the remnants of the Winthrops and Mathers of Massachusetts gathered, more and more, around the energetic genius of Benjamin Franklin, were the leaders of the effective resistance to the imperial tyranny now assembled around a Britain under the thumb

of what the 1763 Peace of Paris defined as a private empire under the thumb of the British East India Company. The fight was essentially between the tradition of Leibniz and the Sarpian ideological tradition of Rene Descartes.

The American Revolution, fought, implicitly, as a recurring, world-wide war, from 1776 through to the time of President Abraham Lincoln's victory over the imperial enemies of the U.S.A., in 1865, defined the essential, global strategic conflict as between the patriotic forces in and of the United States, as against our republic's typical chronic, traditional enemy of the U.S.A. which is known, traditionally, as "the British Empire," but, which is the neo-Venetian financier-oligarchical empire of the international, imperial faction constituted as the followers of the ideological financier-oligarchical power associated with the tradition of Paolo Sarpi.

It has become, since the British crushing of the earlier independence of the New England settlements, about 1689, a war against creativity, led by the followers of Paolo Sarpi, against the legacy of scientific creativity of, essentially, Plato, Cusa, Kepler, and Leibniz, against the imperial, monetarist policies centered in the reductionist ideology of Paolo Sarpi and his intrinsically usurious, Cartesian tradition expressed as the dupes of the Isaac Newton cult.

IV. The Theses

Popular opinion about time is associated with the notion, that, despite our knowledge of changes in the universe we inhabit, even catastrophic ones, that universe remains a territory within which the kinds of changes which we can expect to experience, even the most calamitous we might have yet to imagine, are limited to the bounds of a relatively fixed repertoire, whether we presently know the full spread of that repertoire of possibilities, or not. That belief is, of course, false.

In that sense, we believe in the imagined immortality of real estate, as we believe a-priori, axiomatically, in the immortality of clock time. That belief is also false.

*The customary assumptions about space and time are often related to a seemingly instinctive, silly belief in the immortality of the idea of real estate. Most people in our culture have a lurking suspicion that real estate is in some way immortal, as property in itself, whoever, or whatever might be the nominal proprietor. For similar reasons, most people, especially most who believe in Heaven, also consider Heaven, or whatever, as a special kind of supernal real estate, as Owen Gingerich, author of the foreword to a recent English edition of Johannes Kepler's **New Astronomy**, has, falsely, suggested a notion of that sort.*

Those sorts of pathetic beliefs coincide, more or less exactly, with a permanently Cartesian view of a universe of mere clock-time.

*Nonetheless, contrary to conventionally silly beliefs, those among us who are sane and have left our minds open to the known essentials of scientific principles, believe implicitly in the immortality of the human soul, as Moses Mendelssohn echoed Plato's **Phaedo** on this account. The efficiency of the human soul is not confined, even in the mortal expression of our existence, to the bounds of this body. Rather, the ideas which are shared in shaping the unfolding development of society, such as great Classical musical compositions of their composers, and, more emphatically, the effect of that work of composition, of poetry, music, and physical scientific progress, and the experienced lessons of its performance, bear the mark of what had been the presence of the relevant persons. Thus, human beings who are truly alive while they are living in the flesh, are never merely packages of data, but are the expression of a personal power which transcends the bounds of their animal flesh.*

Plato and Mendelssohn are not speculating in this matter; their insights may not be perfect; but, they are true.

At bottom, it is the development of the human species in the way which corresponds to true Classical-artistic and scientific progress, which defines the meaning of our experience, and of our once having lived. Actually, the very possibility of the existence of mankind as a species, depends upon that kind of process of development, experienced in that way. These types of considerations, are the substance of our souls, that of our nation, for example, humanity generally, nations properly conceived, and of each of us personally. Think of the passage of time as, in a certain respect, like space, a distance travelled. Think of time as physical time, instead of as clock-time. We live temporarily but the better among us live on as immortals in a vast simultaneity of eternity.

That process of change to which we might contribute on behalf of that universe we inhabit so, when considered in such terms, reveals the real, essential content of the passage of physical time. This is not only an idea about us and our nations. It is the standard of reference for measuring the degree and rate of progress in the existence of the human species in this qualitatively changing universe which we, at this given moment, inhabit. It is time so measured, in the principle of anti-entropic action, not "clock time," which is real.

It is time to free ourselves from silly ideas, including the prevalent silly conception of "clock time" among the victims of this.

The evolution of species, whether species of the abiotic phase-space, or of the Biosphere, is an expression of an innately *anti-entropic* impulse, an impulse which resides within us, as an inherent potential of the dynamics of those two general categories of existence on our planet, and beyond. The crucial difference between the endemic creativity of the human species and those of the Biosphere, or the abiotic phase-space generally, is that the development of mankind to higher levels of expressed anti-entropic development, such as evolutionary

development of that quality, is consciously willful, or, at least, approximately so. Therefore, so far, knowledge of actual human creativity, has been limited to the cases of exceptional human individuals, but this need not remain so. We must come now to understand the significance of *physical time*.

Thus, although creativity is pervasive in the universe, as this is to be noted in the case of the evolutionary development of our planetary system from a relatively solitary Sun to a Solar system, we know only that creativity becomes efficiently conscious on Earth today only among human individuals, so far, only rarely. Nonetheless, it has been our great misfortune as a society, so far, that conscious recognition of that potentiality has been widely suppressed, *successfully*, among most in the known cultures of the planet thus far.

The unfortunately widespread suppression of knowledge of this potentiality, on our planet, so far, as such a kind of suppression is the subject of Aeschylus' *Prometheus Bound*, continues to be a great obstacle to the existence of popular understanding of the existence and function of *physical time*, as opposed to the illusory notion of *clock-time*.

Moreover, the suppression of knowledge of physical time, as distinct from mere clock time, has put humanity as a whole repeatedly at risk, by the suppression of the percentile of efficiently, consciously creative human individuals, to a small fraction of the human populations as a whole, so far.

For example, consider the currently widespread belief in the actually absurd concoction of the Nineteenth-Century hoaxsters, the formal mathematicians Rudolf Clausius and Hermann Grassmann who put forward, through Clausius, in 1850, the fantasy which became known later, through his associate Lord Kelvin, as the infamous "Second Law" of thermodynamics, and also became known as the "law of entropy." One should note that both Clausius and Grassmann were mathematicians, not physicists, and made a number of blunders which have tended to be typical of mathematicians; blunders of a type, verging on the effects of formalist *a-priorism*, which remind us of the necessity for the precious, concluding sentence, on the subject of mere mathematics, of Bernhard Riemann's 1854 habilitation dissertation.

Much of the worst effects of the types of systemic errors which mathematicians have tended to perpetrate in modern society, when they have invaded the domain of physics, can be traced, in modern European practice, to the impact of Paolo Sarpi's influence in promotion of a revival of medieval William of Ockham's "razor." This depravity of theirs is characteristic of the ideology of Anglo-Dutch Liberalism and its like.

The problem of note is, that Sarpi had adopted Ockham's silliness as a way of, on the one hand, permitting practical inventions, but, at the same time, refusing, like the Olympian

Zeus of Aeschylus' *Prometheus Bound*, to tolerate the discovery and propagation of actual physical principles. This is of particular note for reason of the fanaticism of the Venetian followers of Sarpi in their attacks on the work of such pioneers as Nicholas of Cusa and Cusa's follower Johannes Kepler. It is to be noted, for example, in the brutish intellectual character of the fraudulent claims against Gottfried Leibniz by fakers such as the Eighteenth-century hoaxsters Abbé Antonio Conti, Abraham de Moivre, d'Alembert, Leonhard Euler, and Euler's protégé Joseph Lagrange.

For example: A glance at the follies of de Moivre, d'Alembert, Euler, Lagrange, Laplace, and Augustin Cauchy on the subject of the uniquely original Leibniz discovery of the calculus, points toward what might be named the "purloined letter" of the case of their deliberate fraud against science. The attempt of these empiricist clowns of modern philosophical Liberalism, to deny the ontological actuality of the "infinitesimal" of the Leibniz calculus, is "keystone" evidence of the origins of the popularization of the fraudulent "second law of thermodynamics."⁹ This is an important key for the understanding of the meaning of the term "physical time," as distinct from "clock time."

The empiricists' and Aristotelians' denial of the existence of an *efficient infinitesimal* in the Leibniz calculus, is a key to understanding the nature, and importance of the distinction of *the anti-entropy of physical space-time* from the notion of entropy inherent within the arbitrarily presumed reductionist outlook of the followers of either Aristotle, or of Sarpi's attempted resurrection of the deceased Ockham.

The issues which I have just described in that way, can be properly referenced for further discussion by glancing at Einstein's emphasis on a finite but unbounded universe, a concept which he linked to the uniquely original discovery of universal gravitation by Kepler. Whereas the Liberal or Aristotelean mathematician sees only a formulation of a suggested physical principle, as locating the universe within the bounds of the fancied trajectory of some allegedly relevant mathematical formulation, on the contrary, Kepler's principle, as seen by Einstein as referencing a finite but unbounded universe, bounds the referenced mathematical function, as Kepler did, rather than being bounded by it.

This distinction has similar significance to the impossibility of bounding a circle or sphere by quadrature, as Euler did in his support of the Sarpian dogma against Leibniz. As Einstein emphasized, Kepler's discoveries of trajectories in astrophysics (and otherwise) bound the process described, in the same sense that universal gravitation, as originally, and uniquely

⁹ It should not be found astonishing that users of the term "thermodynamics" among the devotees of Clausius, Grassmann, and Kelvin, and Ernst Mach follower Ludwig Boltzmann, have no actual comprehension of the proper use of the term "dynamis" or "dynamics." Their use of the term is a form of ignorant blunder which constitutes evidence going to the heart of the issue of incompetence which I charge against those authors in respect to the notion of anti-entropy.

discovered by him bounds a current value in astrophysics. Since that universe is developing, the universe is immediately finite, and, also, essentially anti-entropic.

The Folly of Clock-Time

The occurrence of phenomena such as novae within the astronomer's universe, such as that Crab Nebula which does much, periodically, to combat the radiation of the Sun in shaping some of the leading effects experienced in our own Earth, presents us with evidence of the "mortality" of both Solar systems and the galaxies which they inhabit. If entire galaxies must expect to experience such events, where can we expect to find hope for permanence of any particular existential condition in this universe? Yet, scientific experience has informed us of human scientific progress toward, ultimately, managing what may be seen today as presently awfully awesome powers beyond our presently developed capabilities as mankind.

When we reflect on such deeply underlying, presently awesome realities of human existence in this universe, we are guided by conscience to think differently than most governments, nations, and their individual people have come to think, habitually, today.

We who live today shall not "get there" in today's conventional reading of such language. What, then, shall we, who live now, and will die soon, achieve?

Briefly, the answer is, our importance lies in the changes toward the greater powers of humanity which will be required to ensure that what we might contribute, with our mortal lives today, will have an assured, respectable outcome in contributing to the distant state of the universe which mankind must do much, in terms of our species' relative powers now, to pre-shape today. There, immortality appears as it truly is for us now, concretely: a *simultaneity of eternity*.

This brings us to the heart of the subject of physical, rather than clock time.

Economy & Physical Time

As I have remarked earlier here, the discovery of universal gravitation by Johannes Kepler established implied evidence which brought the achievements of Johannes Kepler to the verge of the related discovery of the principles of physical space and physical time. The obstacle to that further discovery was, chiefly, the grabbing of political power over science by the circles associated with the leadership provided by Paolo Sarpi, most notably Sarpi's relevant leading lackey, Galileo Galilei.

The most crucial aspect of that wrecking of modern science, was the introduction of the mechanistic method in mathematics for which Galileo was merely typical, together with the spread of the influence of the hoaxsters René Descartes and the avowed Cartesian of Paris-based, Venetian pedigree, Abbé Antonio Conti. The most crucial of the sly tricks involved in

these hoaxes was the hysterical insistence, by the opponents of Kepler, Fermat, and Leibniz, on the empiricist's presumption that the "infinitesimal," as defined by the Leibniz discovery of the calculus, did not exist.

Although the entirety of the cult of the black-magic specialist Isaac Newton documented no physical research at all, the overt admission of the fact that was the issue of the followers of Sarpi against competent science, which was uttered by a series of Eighteenth-century hoaxsters associated with the notorious Leibniz-hater Voltaire, such as France's Abraham de Moivre, d'Alembert, Leonhard Euler, and Euler's protégé Joseph Lagrange. As de Moivre himself formulated the hoax's pivotal assertion, the argument was that the efficient physical infinitesimal of Leibniz's discovery of the catenary-cued, *universal physical principle of physical least action*, depended upon the evidence of an allegedly "imaginary" magnitude. Euler's argument to this effect, in supporting the hoax by de Moivre and d'Alembert, was the most obvious case of crude, barefaced lying of the most blatant sort. Euler's hoax led to that of the Duke of Wellington's sometime assets, Laplace with his silly "three-body" concoction and the hoaxster, and plagiarist (as, explicitly, of the original work by Niels Henrik Abel) Augustin Cauchy.¹⁰

However, to understand how that fraud of the Eighteenth-Century empiricists came into being, one has to look back toward the actual roots of empiricism in the work of Sarpi, Sarpi's resurrection of the slop of that medieval irrationalist William of Ockham. This is a typical case of the type in which a criminal incriminates himself by leaving behind thorough evidence of not only his criminal act, but proof of the criminal intent which preceded the act.

In the history of known Egyptian and European science since the program of *Sphaerics* associated with the Pythagoreans, Socrates, and Plato, the concept of leading science, had been discovery of universal physical principles validated by methods of what Riemann was to identify as *unique experiments, experiments whose success defines universal and closely related principles of scientific work*. In contrast to that competence, the fraud Laplace sought to

¹⁰ The crucial, allegedly missing paper by Abel, which Cauchy plagiarized, turned up, neatly catalogued in Cauchy's filing, showing that Cauchy had seized the opportunity of Abel's death to plagiarize that Abel's original work. Laplace and Cauchy came to power in France through the role of the Duke of Wellington who was the official representative of the occupying power in France, following the final defeat of Napoleon Bonaparte. The result was not only appointment of the British asset who became, thus, the new King of France, to replace the previous leading candidate, France's national hero Lazare Carnot, but the British use of their stooge, the new Bourbon monarch, to wreck the educational program which had created the Ecole Polytechnique associated with both Gaspard Monge and Carnot. The hoaxsters Laplace and Cauchy were assigned to replace the Monge and Carnot, who had created and headed the Ecole as the leading scientific institution of the world during that time. Alexander von Humboldt, who had been a close associate of Carnot in the Ecole Polytechnique, did much to rescue and advance the École's work, despite Laplace and Cauchy. This collaboration with Alexander von Humboldt, led to the launching of *Crelle's Journal*, the first of a series of similarly intended ventures which played a decisive role in the advance of science during that century.

simply destroy existing scientific evidence by unproven methods, an incompetence he sought to evade by manufacturing the hoax called “the three-body problem”—perhaps a celebration of the Duke of Wellington, Laplace, and Cauchy, all in the same bed.

In the comparable clinical case, of Sarpi’s embrace of the medieval Ockham, Sarpi excluded physical-experimental proof (as such proof was exemplified by the work of such Cusa followers as Leonardo da Vinci and Kepler), in favor of certain types of apparent coincidences. If the concocted scheme could be caused to appear to be plausible, and Sarpi and his accomplices chose to profess that they admired it, it could be adopted, by aid of richly lying assertions contrary to reality.

The idea of “proof” which Sarpi’s Ockhamite followers, the empiricists, employed came to be mathematical formulas decreed to be self-evidently plausible in the opinion of an influential set of hoaxsters, without any reference to experimental or comparable proof of principle. The entirety of all of what was claimed as “original work” of the Newton school and its Eighteenth and Nineteenth centuries’ followers, was of that cast. Thus, mathematical formulas were crafted and employed as substitutes for crucial kinds of experimental principles. On the basis of that method, actual principles, such as the principle of universal gravitation discovered by Kepler, were denied in a completely arbitrary way.

The most consequential aspect of such frauds by the empiricists, mechanists (such as Ernst Mach), and worse positivists (such as Bertrand Russell, Norbert Wiener, and John von Neumann), have that common feature.

It was the latter reductionist methods, which came to political power through the establishment of Sarpi’s influence expressed in the contemporary ideology of the virtually world-wide British (drug pushing, financier-oligarchical) empire, which used that power of imperial financier practices, such as the financial derivatives frauds which have bankrupted the world’s financial-monetary system today, to achieve world empire of Venetian-style oligarchical-financier power.

From the standpoint of natural law, the crucial feature of the imperial system which has recently entered the final phase of its existence as a breakdown-crisis of the present world financial system, is its prohibition against any systemic consideration of the principles of physical economic practice on which the immediate continuation of civilized life upon this planet now immediately depends.

The Function of Physical Time

When the case against imperial financial systems is taken into account, and considered in the terms of reference which I have chosen, especially so, at the outset of this present chapter of the report, the fragility of the false presumption that the planetary and interplanetary systems

of today are the permanent form of experience for the mind of the members of the human species, points our attention to the challenge of ensuring the continuity of what mankind so far has been building. Then, rather than imagining that the stage of the universe in which we stand now, will be a permanent setting for the human soul; we must think of how we must build the development of that which is incarnated as spiritually, within us, such that the purpose of those souls which we are, shall become adapted to our future circumstances under which the distant future changes in the composition of our universe will continue to supply meaning to what we have been up to now.

In this view of immortality as a purpose for mankind's existence, time as we have been accustomed to discussing it formerly, now has a changed quality for truly sane mankind. Time and space become complementary, if essential parts of the total experience; but, as Einstein's circles emphasized, already, at the beginning of the Twentieth Century, time by itself, and space by itself, are delusions which no longer exist in that way.

What we must measure, therefore, is the rate of development of change of both the universe we inhabit now, and in the future when the circumstances may be qualitatively different. Thus, it is development of mankind, including man's changes in the organization and composition of our habitat, which is crucial. Clock time as such is of no intrinsic importance; the important thing is anti-entropic development. This means emphasis on the relative rates of development of man's powers and condition, and that relative to the entropy which the so-called malthusians require, which would gobble us up, and make the future existence of man like that of the former Dodo. The rate of development, relative to attrition, and the outcome of progress so defined, now replaces mere abstract notions of *a-priori* space and *a-priori* time, with net rate of qualitative powers of fundamental scientific progress to higher states of being.

The development of human space-time, a development within which the death of the mortal package occurs within which we are delivered to us, is the measure of the meaning of the spiritual existence of each among us all. After all, when one's immortal package has been emptied of the animal we inhabited, and now must cast aside, it is what our mind has become as a power to defend, and to improve the universe, which becomes the replacement for some poor animal's notion of time.

This conception which I have just summarized in that way, is possible for us, as not for the lower forms of life, because we have the power of true creativity, if we develop and use it. This power is represented, in its potential, as the uniqueness of the human's ability to make fundamental discoveries of principle, discoveries which change the universe we inhabit. It is the rate at which we progress in service of that intention, which is the measurement which

supersedes that passage of clock-time which was never better than a relic of our species' sometimes bestial past.

It is that which we must measure, and forecast, if this planet is now to escape from the onrushing plunge, already under way in an advanced state of crisis. I suspect, on excellent premises, that Albert Einstein would agree.