

## MEMORANDUM

LaRouche on the Subject of B.G. Tilak's Thesis:<sup>1</sup>

# The Present Scientific Implications of Vedic Calendars from the Standpoint of Kepler and Circles of Gauss

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FUSION ENERGY FOUNDATION

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Work reviewing the historical implications of early Vedic astronomical calendars, by FEF and some among its collaborators, is an included feature of several years ongoing work by an international team co-directed by FEF co-director Dr. Uwe V. Parpart and Lyndon H. LaRouche, Jr., chief executive for an international news-weekly, the **Executive Intelligence Review**.<sup>2</sup>

This research-project was actually begun as a collaboration between Parpart and LaRouche beginning the early 1970s, and was continued as an integral part of the historical researches into the roots of modern science by the staff of FEF. This program has emphasized attention to primary published and unpublished documents, with emphasis on previously unknown as well as generally neglected materials available only in documentary deposits of specialist archives in various parts of the world.

The central objective of this particular work has been to uncover and correlate evidence from a wide range of primary sources bearing upon the principles and methods of scientific discovery employed at various points in the emergence of mathematical physics and related subject-matters. The practical objective of this specialized work is the development of new elements to be supplied to improved educational curricula, elements selected for the purpose of fostering an increase in the students' potentials for scientific discovery.

1. Lyndon H. LaRouche, Jr. is a member of the board of directors of the Fusion Energy Foundation.

2. The **Executive Intelligence Review**'s annual subscription price (\$396 in the U.S.A.) properly implies its specialist quality, serving the economic policy and related needs of executives worldwide.

We have been able to show how the work of Nicholas of Cusa and other leading figures of the fifteenth-century Golden Renaissance set into motion the extraordinary, skyrocketing development of modern mathematical physics. Cusa's **Docta Ignorantia** is most exemplary of writings with a powerful influence on the scientific work of Leonardo da Vinci and successors such as Kepler, Gilbert, Desargues, Leibniz, et al., either directly or indirectly. Cusa's work was chiefly addressed to classical-Greek sources, including the work of Archimedes most emphatically. This view of the classical Greeks from the standpoint of the Golden Renaissance implies the question: Whence did those Greeks, in turn, acquire their inspiration?

About 1981, largely on the initiative of Dr. Parpart, we focused on the work of leading centers of Sanskrit studies in India, centers which have been developed on the foundations of the German school of classical philology of Humboldt, Bopp, and Boeckh. In this connection, our attention was drawn to two of the books of the Indian patriot-scholar Bal Gangadhar Tilak, Tilak's **Orion** [1893] and **Arctic Home in the Vedas** [1903]. Employing studies of ancient Vedic astronomical calendars conducted chiefly by German astronomers and physicists, including the circles of Karl Gauss, Tilak dated the earliest versions of some Vedic hymns to not later than 4,000 B.C., when the relevant equinox was in the constellation of Orion. In the **Arctic Home**, Tilak extended what he had begun in **Orion**, exploring the implications of astonishingly accurate polar long-cycles and related matter in transmitted epic poetry of the Indo-European literature. The question was posed:



Bal Gangadhar Tilak

Could such provably pre-Mesopotamian datings for a rigorous early astronomy supply important parts of the answer to our questions respecting the early roots of scientific thinking?

In aid of this quest, we focused attention on several areas bearing upon these questions, including review of the work of German astronomers who had studied the Vedic long-cycle astronomical calendars. In general, we brought to bear our earlier work on classical Greek philosophy and philology, examining the Vedic materials of relevance from this standpoint of reference.

Although the amount of usable material from Sanskrit sources is, understandably, if frustratingly meager in amount, there is enough which is both incontestable and crucial, that re-examining the development of European scientific methods and thought in the setting of Vedic evidence proved most fruitful in several ways.

The purpose of this present report is to provoke discussion of the project summarized among a broader circle of specialists, in addition to informing FEF mem-

bers of this aspect of our ongoing research-activities. We believe strongly that there are lessons to be adduced by aid of such studies which will be useful stimulants to some engaged in fundamental research in physics-laboratories today.

First, we outline the points of departure we have employed for correlating this and related information.

### The LaRouche-Riemann Method

The bench-mark for this and other undertakings has been the exceptionally successful methods employed in the **Executive intelligence Review**'s quarterly forecasts for the U.S. economy, published regularly beginning November 1979.<sup>3</sup> This is the outgrowth of a discovery made by LaRouche during 1952, that the methods of Bernard Riemann (1820-1866) permitted implicit measurement of the causal connection between introduction of improved technologies and resulting increases in potential rates of economic growth, on condition that the definition and measurement of technology follows the pioneering definitions of technology supplied by Gottfried Leibniz.

Leibniz's development of the foundations of economic science is fairly summarized as follows.

Leibniz's development of economic science, as distinct from pre-existing doctrines of *cameralism*, centered around exploration of the principles of the heat-powered machine; most emphatically the relationship between the consumption of an amount of coal to power a machine, and the resulting increase in the output of an operative obtained by employment of such a heat-powered machine. In the hypothetical case, that two machines consume the same amounts of coal per hour, but that the same operative obtains greater output from the use of the one than the other, the difference in performance is attributable to the internal organization of the machine. This difference in organization defines the notion of *technology*, or, in eighteenth-century French usages, such as the Monge-Carnot Ecole Polytechnique modeled upon Leibniz's influence, *polytechnique*.

In the simplest cases, the organization of a powered machine may be studied in terms of normalized circular action. The changes in direction of application of trans-

3. This quarterly forecast is called the "LaRouche-Riemann" forecast because its computer-assisted application employs Riemann's 1859 "On The Propagation of Plane Air Waves of Finite Magnitude" as the model for precalculating phase-changes within economies.

mitted power, plus changes in the energy-flux density of the power applied, are central points of consideration. Leibniz treats this approach as subsumed by his notion of a Principle of Least Action.

In the more generalized case, in the complex domain, self-similar conical-spiral action supersedes circular action. The conical form of self-similar spiral action is the normal elementary representation of *work*, and the cylindrical form of self-similar spiral action represents the transmitting of *energy* without work accomplished. By normalizing statements about technology according to these terms of reference, technology is implicitly measurable, and that measurement correlates with potential of increased rates of economic growth for the case of a properly normalized description of an economic process.

In Leibniz's first approximation, the notion of *work* was derived from simple comparison of rates of output of defined products by an operative: the object of the heat-powered machine was defined by reference to increasing an operative's power to produce an increased number of useful objects of a specific quality.

In the LaRouche-Riemann method, the implicit fallacies of such an assumption are emphasized. *How do we determine the relative usefulness of an object produced? How do we determine whether to increase the output of product "A," rather than devoting that allocable effort to production of more of "B" and "C"?* The customary approaches to interpreting the "allocation problem" are avoided by the LaRouche-Riemann method.

Instead, the *increase of the potential relative population-density* of a society is employed as the standard of measure of *work* accomplished within that society, and particular production is treated as an implicit contribution to increase of the potential relative population-density for the society as a whole.

The importance of this choice of measurement of *work* is shown most directly by reference to the hypo-



*Gottfried Wilhelm Leibniz (1646-1716).*

thetical case in which a society abruptly halts technological progress. Continued reinvestment of profits and "replacement funds" combined, under conditions of fixed technology, is inherently entropic. Since neither living processes nor societies can endure for long unless they are characteristically negentropic, the preconditions for indefinite existence of a society/economy is technological progress. Those activities within society which implicitly increase the potential relative population-density must represent, therefore, either the introduction or mediation of advances in technology. It is the aspect of production (etc.) which initiates/mediates advances in technol-

ogy which contributes work.

So, the indicated correlation of technology and economic growth is feasible and required.

This requires that we attempt to correlate the kinds of mental activity of individuals which generate or mediate advances in technology with implicitly measurable technology. We must define topological congruence between creative-mental processes, so defined, and those transformations in functions of a continuous manifold which correspond to advances in technology. To accomplish this, we must shift attention away from particular inventions to *species* of invention; we must correlate a *species* of creative mental transformation in mental behavior with a correlated *species* of advances in generalized forms of technology.<sup>4</sup>

We organize the study of the mental processes of creative discovery according to Plato's notion of a hypothesis of the higher hypothesis. We follow Plato also in requiring that all statements developed bearing upon the subject of hypothesis must be stated as principles of geometry. However, the form of geometry which meets this requirement is of the form of a synthetic geometry.

4. Criton Zoakos has pointed out the fallacy of translating the Greek into "idea" or "form" in connection with Plato's work; the best English equivalent would be "species."

In such a synthetic geometry, no axioms, postulates, or deductive methods are permitted. In the case of a geometry of visible space, only circular action, as defined by the isoperimetric principle, is “self evident”; all other forms must be derived by a “hereditary” principle of construction from circular action so defined. In higher geometry, the geometry of a continuous manifold, the self-similar conical form of spiral action, the elementary complex variable, takes the place occupied by circular action in the discrete manifold of visible space.

The notion of a hypothesis of the higher hypothesis is defined by considering three distinct kinds of hypothesis. This leads directly to a statement subsuming both the nature of creative-mental activity and the congruence of such activity with advances in technology.

*Simple Hypothesis.* Any prevailing body of ideas about man and the universe, most clearly and simply mathematical science, can be interpreted as a logical latticework defined everywhere by some “hereditary principle.” This principle may be either of the syllogistic or constructive species. In the case of a syllogistic lattice-work, all theorems have embedded in them reflections of the axioms and postulates upon which the elaboration of the lattice-work is premised. Similarly, although a synthetic geometry has no such deductive or axiom-postulate features, the point of departure of the geometry, and the principle of construction employed, is an hereditary feature of the geometry as a whole.

In the case that an hypothesis is formulated, and that the formulation is strictly defined by standards of consistency with an existing body of knowledge, the hypothesis so formulated is a *simple hypothesis*.

The practical implications are clearer as we turn our attention to the subject of *higher hypothesis*.

The second class of hypothesis, *higher hypothesis*, violates consistency with existing bodies of thought in a special and rigorous manner. In this instance, we assume that some axiomatic, or kindred feature of existing scientific knowledge (for example) is fallacious or inadequate. To that purpose, we define an experi-



Nicholas of Cusa

mental observation whose specific subject-matter is some crucial evidence which suffices to overthrow the axiomatic or kindred assumption in question.

All fundamental scientific discoveries, for example, are of the form of crucial, sufficient proof of such a higher hypothesis. The socratic method, or what Plato identifies as his *dialectical method*,<sup>5</sup> is based on such critical examinations of generally accepted underlying assumptions. In that respect, socratic method and creative-mental activity are of the same species.

If it is shown that successive scientific revolutions, for example, are an orderable series, then it is so illustrated that successive higher hypotheses are implicitly subsumed by some definable principle of progressive discovery, such that the principle itself remains substantially the same through a series of successive scientific revolutions; that although those revolutions contradict one another in certain key fundamentals, all members of that series are nonetheless consistent with some definable principle of discovery sufficient to account for the generation of the higher hypothesis in each case. Such a principle of discovery is the subject of a special hypothesis, an hypothesis generating a series of higher hypotheses: a *hypothesis of the higher hypothesis*.

This hypothesis of the higher hypothesis is implicitly subject to experimental demonstration and definitions. That is, there are experiments which explore such an hypothesis as the principle subject-matter directly considered. Cusa's **Docta Ignorantia** is exemplary of the approach to be taken. Cusa's work on geometry and scientific method, the work of Luca Pacioli and Leonardo da Vinci, the work of Kepler, Leibniz, Gauss, Riemann, and Cantor, are exemplary of the main currents

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5. This is not to be confused with the “dialectical method” of either G.W.F. Hegel or Karl Marx. Hegel's **Phenomenology** and other of his relevant writings are “delphic” parodies or Aristotle's treatment of Plato's method, but also directly opposed to Plato on all matters of fundamental principles. The best modern examples of masters of dialectical method are Nicholas of Cusa and the socratic dialogues composed by Gottfried Leibniz.

of continued attention to this subject. The rigorous elaboration of a synthetic geometry, first for the discrete manifold of visible space, and then for the continuous manifold, is the best example of concrete definitions of an hypothesis of the higher hypothesis.

Our own work on this subject was improved significantly by concerted attention to the central thesis of the great Sanskrit philologist Panini. The central feature of the classical philology of Panini<sup>6</sup> is his insistence that all terms of language, and the structure of statements, is derived from the transitive verb. In fact, all rigorous efforts to elaborate philologies and grammars, beginning with Panini's work, are broadly to be divided into two opposing camps: those which, like Panini, derive everything from the transitive verb, and those opposing currents which base grammar on the noun as elementary. The relevance of philology to modern issues of scientific method is illustrated by the point that the scientific method of Cusa, Leonardo, Kepler, Leibniz, Gauss, et al. defines elementary phenomena as of the form of transitive verbs, whereas the empiricists and materialists (e.g., Bacon, Descartes, Newton, et al.) define nouns (names of objects) to be elementary. *These represent two mutually exclusive ways of thinking about man and the universe*, as illustrated by the irreconcilable opposition between platonic *realism* and aristotelean *nominalism*.

In a conception of the universe treating the noun as the elementary unit of thought about sense-experience, the noun is the thing toward which one might point. The result is typified by the Cartesian form of the discrete manifold nouns within empty Euclidean space. This approach leads to axiomatic algebra of the type associated with radical empiricism or neo positivism the simple comparison of magnitudes of countable objects. This also defines the substrate of the syllogism: the syllogism prohibits the statement of action or cause as such within the statement: *action* and *cause* are replaced by the principle of the Middle Term. The notion of hypothetical "instantaneous" existence of objects is also exemplary of the characteristics of a nominalist outlook.

In the opposing, verb-centered philology and philosophical world-outlook, a phenomenon is the smallest possible transformation which is characterized by that transformation as a species.

For example: Luca Pacioli and Leonardo da Vinci

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6. Panini probably wrote during the Fifth Century B.C., as indicated by his reference to Buddhism.

were the first known to have reported, that all living processes are distinguished from non-living by a self-similar morphology of development congruent with the Golden Section. Thus, the smallest aspect of a living process which contains this characteristic defines an elementary phenomenon of biology. This does not ignore the chemical composition of organic material; however, chemical composition, and chemical reactions as such, do not define a process as living.

The modern classical case of rejection of the verb-definition of phenomena is Ludwig Boltzmann's doctrine of statistical fluctuations, and the Weiner-Shannon definition of "negentropy" within an "information theory" premised upon the statistical theory of percussive heat. Boltzmann's and related approaches start from the LaPlace version of Descartes' discrete manifold: a noun-form. The "theory of statistical fluctuations" is probably to be credited, at least chiefly, to LaPlace. A worldview premised upon such an assumption must imply the arbitrary postulates superimposed upon thermodynamics by Helmholtz et al., the so-called "laws of thermodynamics." As Newton pointed out, the use of a Cartesian manifold for physics presents a view of the universe in which the universe is necessarily winding-down as the mainspring of a mechanical clock, a point underscored by Leibniz later in the Clarke-Leibniz correspondence. Entropy is a doctrine inherent in the adoption of a nominalist form of discrete manifold, such as Descartes'.

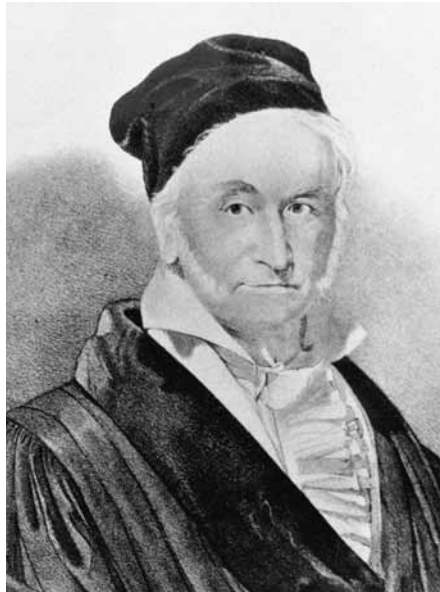
Yet, Kepler had already demonstrated that the laws of astronomy were derived uniquely from geometrical constructions hereditarily derived from the Golden Section. Hence, the universe as a whole had the characteristics otherwise associated with living processes. Although Kepler's doctrine was not adequate, it was proven to be fully valid, relative to all alternatives proposed, by the work of Karl Gauss, et al. Gauss showed also that elliptic functions as projected into the domain of the visible manifold are generated by self-similar conical-spiral action in the continuous manifold.<sup>7</sup> The conical form of such self-similar spiral action is the source, within the continuous manifold, of Golden-Section-ratio characteristics of images projected into the discrete manifold. So, self-similar conical-spiral action in the continuous manifold is the proper geometrical definition of the term *negentropy*. The universe as

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7. See Dr. Jonathan Tennenbaum's treatment of Gauss's "arithmetic-geometric mean." FEF, 1983.



Johannes Kepler



Carl Friedrich Gauss



Bernhard Riemann

a whole is essentially negentropic, not entropic; the Kepler-Gauss proofs are conclusive to this effect. The introduction of arbitrary postulates, such as the “laws of thermodynamics,” after the work of Gauss had been well established, must be classed as a sophomoric sort of error.

The topological principle of Lejeune Dirichlet, which Riemann repeatedly identifies as “Dirichlet’s Principle,” is the crucial step making possible Riemann’s advances premised on the work of Gauss. The 1854 habilitation dissertation<sup>8</sup>, one of three papers which Riemann prepared for that occasion, identifies the principled, central feature of that connection, although only in a preliminary fashion. The “unique experimental” method, defined by Riemann in this location, is exemplary of the need to restrict the definition of empirical phenomena to phenomena defined in terms of transitive verbs [transformations].

If this is applied to Plato’s work, it becomes clear at once that the methodological standpoint we have summarily described here is the world-outlook guiding Plato in those writings.

To this, one crucial added point must be attached. The application of the principle of synthetic geometry to Panini’s thesis requires that verbs themselves be derivable from a single transitive verb. This elementary transitive verb must be congruent with the notion of

self-evident circular action in a discrete manifold, and self-similar conical-spiral action in a continuous manifold. Roughly, the name for this verb must be “to create” or, “to cause oneself to be elaborated.” In Judeo-Christian theology, this is the name for the Creator, or, perhaps better, “The Creating.” As a matter of human knowledge, that theology would prescribe that we know such a “Creating” only in its aspect as the *Logos* (e.g., of the Gospel of St. John). Plato defines this *Logos* as an *unhypothesized principle of the Universe*, and as that which progressive development of the hypothesis of the higher hypothesis seeks to reach. This *Logos* is identified as an efficient existence (therefore *substantial*), and consubstantial with the “Creating,” named in Plato’s *Timaeus*, the *Composer*. [The practical significance of identifying the theological connection will be clear once we examine the implications of Tilak’s thesis as such.]

*Creating* and *negentropy* have the same significance, on condition that negentropy is defined geometrically, as we have stipulated above. Those aspects of human mental life which correspond to the hypothesis of the higher hypothesis, and to the revolutionary activity of the higher hypothesis, are the only aspects of our thinking properly, usefully described as creative-mental activity.

Drs. Parpart and Bardwell, and their collaborators, have estimated the potential human population of the Earth to be approximately ten million under conditions

8. Riemann, “On The Hypotheses Which Underlie Geometry.”

of a “hunting and gathering society”: in the order of about ten square kilometers is required to sustain an average person. The human population today is rapidly approaching three orders of magnitude beyond that—provided we do not plunge into a New Dark Age during the remaining years of the present century. No animal species could willfully effect an increase of potential relative population-density of even a significant fraction of one order of magnitude. The difference between human and animal species on this account is those creative-mental potentials we associate with the generation and mediation of revolutionary advances in technology. It is these qualities which make us human, as distinct from those inferior aspects of our nature [individual irrationalist hedonism, for example] which we share in common with the beasts.

It may be observed that even in those features of individual behavior which are clearly directed by irrationalist hedonistic impulses, human behavior is qualitatively “more sophisticated” than that of the beasts; the use of language by a demented fellow, for example. Yet, the power of speech was not developed by the bestial impulse which employs it in that instance; a development of human speech accomplished through the action of creative-mental life, has been, in that instance, appropriated by a base impulse. Human individuals, and societies, are a conflict between the creative-mental potentials of the individual and those baser, irrationalist hedonist, impulses which partake of the beast. The individual, the society is a product of the interaction of two opposing qualities of generative impulses.

Before turning to the implications of Tilak’s thesis, one crucial point must be clarified.

Up to this point, we have treated the hypothesis of the higher hypothesis as if such a principle of discovery were more or less fixed in character, except as we indicated Plato’s view of the development of such an hypothesis toward sought agreement with the Logos. That simplified view, employed up to this point, was adopted as a pedagogical device: to emphasize that the character of that hypothesis is such, that if the principle were fixed in quality it would implicitly generate a sequence of successive higher hypotheses.

In reality, the hypothesis of the higher hypothesis develops through the effects of higher hypotheses. The best example of the form of this change, *this perfecting process*, is the emergence of the notion of the complex domain, especially beginning the work to this effect by Karl Gauss. From Plato onward, it was a principle that

the visible world is a distorted image of the real universe, like the shadows cast by firelight on the rough walls of a darkened cave. The idea of a transfinite, superior to the visible world, of which the visible world affords us only distorted images, is a common feature of Plato, Cusa, and so on. Yet, the internal features of the real world, the world of the continuous manifold [complex domain] were not solved to the degree that the synthetic geometry of the visible domain was explored.

Although this was not generally accepted even at Göttingen University during the later-nineteenth or early-twentieth centuries, the standpoint running into Riemann, which Riemann represented most clearly and emphatically, is that the transfinite domain [the complex domain of the continuous manifold] is the location of efficient substantiality. On this account, that view is sometimes associated with the name of “ontologically transfinite.” Looking from Riemann back through Gauss, Leibniz, Cusa, to Plato, there is no point of principled inconsistency between Riemann’s view and that of these predecessors. Yet, the mastery of the internal geometry of the complex domain, begun so clearly by Gauss, represents a decisive breakthrough in richer form of an hypothesis of the higher hypothesis.

More practically, a well-ordered economy is one whose direction of development is supplied by “science driver” institutions, such as the Monge-Carnot Ecole Polytechnique, the Manhattan Project, the NASA research-and-development phase, and so forth. The most effective kind of science-driver institution would be one which arranged its efforts to identify and attack those frontiers of scientific inquiry on which revolutions respecting fundamentals were located. The objective is to achieve something analogous to what Gauss achieved in enriching the hypothesis of the higher hypothesis, to improve the hypothesis of higher hypothesis, as a principle of discovery, to the effect of making it more powerful.

It is this standpoint, pivoted on the LaRouche-Riemann method, which is applied to the case of Tilak’s thesis.

### ‘Arctic Home’

Combining Sanskrit philology with European astronomers’ work on Vedic long-cycle astronomical calendars, Bal Gangadhar Tilak developed two successive, coherent theses, which he himself combined into a single thesis in his later work, **Arctic Home**. In the first work, **Orion**, Tilak showed that the earliest Vedic

hymns, including those containing crucial calendar information, must be dated to earlier than 4,000 B.C., during the period the relevant equinox coincided with the constellation of Orion. In the second, **Arctic Home**, he focused on the fact that the ancient astronomical calendars transmitted through the Vedic referenced north-polar constellations, coinciding with transmission of other references to polar constellations and legends in the Vedic and Zend Avesta.

To provide the flavor of Tilak's own thought on the matter, the following excerpt from the Preface of his 1903 **The Arctic Home** is supplied here:

This present volume is a sequel to my **Orion** or *Researches into the Antiquity of the Vedas*, published in 1893. The estimate of Vedic antiquity then generally current amongst Vedic scholars was based on the assignment of arbitrary period of time to the different strata into which the Vedic literature is divided; and it was believed that the oldest of these strata could not at the best, be older than 2,400 B.C. In my **Orion**, however, I tried to show that all such estimates, besides being too modest, were vague and uncertain, and that the astronomical statements found in the Vedic literature supplied us with far more reliable data for correctly ascertaining the ages of the different periods of Vedic literature. These astronomical statements, it was further shown, unmistakably pointed out that the Vernal equinox was in the constellation of Mriga or Orion (about 4,500 B.C.) during the period of the Vedic hymns, and that it had receded to the constellation of the Krittikâs, or the Pleiades (about 2,500 B.C.) in the days of the Brathmanas. . . . But if the age of the oldest Vedic period was thus carried back to 4,500 B.C., one was still tempted to ask whether we had, in that limit, reached the Ultima Thule of the Aryan antiquity. . . . the conclusion, that the ancestors of the Vedic Rishis lived in an Arctic Home in inter-Glacial times, was forced upon me by the slowly accumulating mass of Vedic and Ayes-tic literature. . . . the beginnings of Aryan civilization must be supposed to date back several thousand years before the oldest Vedic period; and when the commencement of the post-Glacial epoch is brought down to 8,000 B.C., it is not at all surprising if the date of Aryan primitive life is found

to go back to it from 4,500 B.C., the age of the oldest Vedic period. There are many passages in the Rig-Veda which plainly disclose the Polar attributes of the Vedic deities, or the traces of an ancient Arctic calendar. When we put them [such Vedic and Avestic references] side by side with what we know of the Glacial and post-Glacial epoch from the latest geological researches, we can not avoid the conclusions that the primitive Aryan home was both Glacial and inter Glacial.”<sup>9</sup>

The principal fact we are emphasizing by aid of reference to Tilak's thesis, is Tilak's reliance on a fact already well-established by German astronomers approximately a century before Tilak's writing: *the first known trace of a rigorous mathematical science, astronomy, antedates all of the cultures of the Mesopotamian and Egyptian-dynastic series by some thousands of years.*

The LaRouche-Riemann method enables us to accomplish two things which could not be undertaken either by astronomy alone, or by application of Sanskrit philology to the astronomical-calendar evidence from the Vedic sources. First, by using the LaRouche-Riemann method, we are able to show that the astronomical-calendar evidence suffices to demonstrate conclusively certain characteristic features of the culture which produced such ancient calendars. Second, from the standpoint of the hypothesis of the higher hypothesis. Situated within the LaRouche-Riemann method, the calendar evidence, added to already explored evidence on the recent 2,500 years development of European science, permits us to offer more general, more fundamental conclusions bearing on the principled features of scientific progress than have been otherwise available.

The initially stunning feature of the ancient calendars is the inclusion of some very long astronomical cycles, including such cycles for the North geologic and *magnetic* Poles. Most stunning of all, the determination of the cycle for the movement of the magnetic North Pole could be accomplished by an ancient culture only were that culture *a well-developed maritime culture.*

The LaRouche-Riemann method corroborates such evidence's implications, by showing that the conditions

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9. 1958 reprint, Poona, India, 196, pp. i-vi.



of “hunting-and-gathering culture” are such, that the transition from a primitive food-gathering culture to a civilized series of cultures can be accomplished in only one general way, through only one aspect of the spectrum of primitive food-gathering activities. That aspect of food-gathering activities is fishing, especially near the mouths of large river-systems.

This is readily shown, by restating population-density in the language of thermodynamics. Of all the potential energy available in an average square-kilometer of habitable area, human practice at any level of development is able to obtain only a fraction of that total as usable energy employed to sustain human existence. In the food-gathering culture, this is expressible by such statements as that approximately ten square-kilometers are required to sustain an average individual.<sup>10</sup>

The case of fishing near mouths of large river systems is an exception to this general picture. The development of such fishing along coastal regions is the precondition for emergence of urban-like settlements. The usable energy available per square-kilometer of food-gathering activity, is the critical parameter in this case. The development of a maritime culture, associated with urban sites, is demonstrably the precondition for the production of the “agricultural revolution.”

Our best archeological information known to be available today dates the “agricultural revolution” to not later than approximately 8,000 B.C. This is based on traces of seed-varieties demonstrably products of a process of cultivation. In European legends, that evidence coincides with the overlay of Plato’s report on Egyptian accounts of the fall of an Atlantis culture [circa 10,000 B.C.] and the account of the Atlas people in Didorus Siculus. As we shall note, in due course, here, there are internal features of the account in Didorus Siculus which oblige us to regard it as largely history, rather than myth. According to the Atlas people, their ancestors were taught agriculture by a colonizing maritime culture. It is certainly the case, that the optimal circumstance for development of an agricultural revolution is a wide-ranging maritime culture’s impact upon innovations in plant cultivation near the urban sites of such a culture.

The Atlas account also indicates the people who arrived in boats, to establish an urban colony in the vicinity

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10. At an average life-expectancy significantly lower than twenty years, in circumstances more precarious than the faster, stronger baboon’s.

of the Straits of Gibraltar, introduced an astronomical calendar, a point indicated by the “sky god” in what the Atlas people jovially assured Didorus Siculus was no religious pantheon, but a mythologized version of leading figures of the colony in that vicinity. A maritime culture requires astronomy of some degree, and urban sites are a precondition for development of an astronomy attributed to the pre-Vedic definitions of long cycles.

It is rather obvious that the use of stone structures for astronomical observations, and the observation of constellations in conjunction with measurement of the sidereal year, the solar year, and progression of the equinox, constitute the rudiments of an early form of rigorous astronomy. The addition of a lodestone at such observatories, and the use of such a version of Ulysses’ “spirit of the ship” for maritime navigation, constitutes an adequate repertoire for producing an astronomy of the type indicated for Vedic and pre-Vedic calendars. These constitute the clearly adducible characteristics of Vedic and pre-Vedic astronomy.

On the matter of ancient trans-Atlantic, and trans-Pacific maritime cultures, the arguments mustered in opposition to such propositions are clearly arbitrary nonsense. Admittedly, the fact that one argument is nonsensical does not show that every variety of counter argument is therefore valid; the fact that it is absurd arbitrariness to argue against the existence of trans-Atlantic maritime culture does not show that every mythical or imagined account of such trans-Atlantic cultures is therefore valid. [Otherwise, a statistician might argue, as some have said, that since there must be either life on Mars or not, the probability of life on Mars is 50%.] Exemplary of the nonsense is the public display of laborious efforts to locate the travels of the Odyssey entirely within the Mediterranean. “Homer’s” text describes with striking precision, a journey through the Straits of Gibraltar, across into the Caribbean, back to northern Europe and down to Greece. This would have required a long-boat [much resembling a later Viking long-boat] of the sort which proliferated during no later than the second millennium B.C. among “Peoples of the Sea,” and would have been greatly advantaged by a compass—the “spirit of the ship.” Certainly, the pre 1,000 B.C. cultures in Yucatan were far more advanced than later Mayan habitations of the same region, and also, contrary to myth, the Genoese Columbus was guided in his famous travels by aid of a map provided him: the trans-Atlantic traffic has been provably con-



wikipedia

*The Sea Peoples in their ships during the battle with the Egyptians. Relief from the mortuary temple of Ramesses III at Medinet Habu.*

siderable over the millennia, apart from the not inconsiderable point that the evidence, although chiefly conclusive, is sparse and fragmentary.

More troublesome is the matter of the Arctic Home for such a maritime culture during either the inter-Glacial or immediate post-Glacial period. That this must have occurred prior to 8,000 B.C. is clear enough. What is troublesome is the question whether this began during the approximately 10,000 years of glacial melt preceding 8,000 B.C., or during the glacial period itself.

We have in currency two sets of general accounts of the last Ice Age. One account has the glaciation radiating into the North American and Eurasian continents from the polar ice. This account is by no means conclusively demonstrated. The second account associates the Ice Age with entry of the Gulf Stream into the polar region, melting the ice-cap, and contributing to the deposit of glaciation upon the adjoining continents.

Unless we associate the pre-Vedic polar culture in question with special cases like the Alaskan land-bridge, the astronomical-calendar evidence requires the Gulf Stream version of the Ice Age, and points to a stunning antiquity for that culture.

Only a few features of this discussion of the antiquity of the early astronomical calendars are essential correlatives of Tilak's **Arctic Home** thesis. However, we must not overlook the fact that some Soviet specialist has proposed diverting the Gulf Stream into the Arctic, an endeavor which might be suicidal for the Soviet Union, as well as destructive of much of Europe

and North America. What is essential, and also demonstrated, is that we must locate an ancient maritime culture significantly prior to 8,000 B.C., and as existing within the polar region.

It is noteworthy that only a maritime-fishing culture would have lived in a quasi-temperate Arctic region [when ocean-levels were as much as hundreds of feet lower than today] during the long Arctic night. Since early astronomical calendars were produced there, those calendars must have been produced under such cultural conditions.

It is also strongly indicated, that the "riparian model" of development of civilization is defective to the point of being a fallacy of composition of evidence, and in key respects a deliberate falsification of the overwhelming evidence to the contrary by those who have been influenced by the same "theory of stages" of human development

made famous [or, notorious] by Adam Smith, first, and then Hegel and the Marxists, such as Karl Wittvogel, V. Gordon Childe, et al. There was "riparian" development, of course: water and energy are the essence of agricultural production. This riparian development was an offshoot of broad development of maritime culture. The leading points of absurdity of conjectural portraits such as that of the Marxist V. Gordon Childe, are now to be examined, providing the bridge-discussion leading into summary of the second of the two points to be developed here.

### The 'Whore of Babylon'

In the modern social sciences, including archeology, all general social theories rampant today are based directly or indirectly upon the arbitrary assumption, that civilized history begins with the Mesopotamian culture of Sumer. General social theory imposes the cultural model concocted for the Mesopotamian series of cultures beginning with the Chaldeans, and interprets everything from psychology to general theory of mathematics-history in a way consistent with the Chaldean mythology.

Most interesting, on this point, is the rather hysterical insistence among archeologists generally, that although some contact between the Sumerian and Harappan culture [of India] must be conceded, the two cultures must be treated as distinct. The evidence is overwhelming to the contrary. First, the Harappan culture was vastly more extensive, and more advanced

technologically than the Sumerian and Chaldean. Moreover, the Sumerians' insistence that they were a "black-headed people," so distinguished from their semitic neighbors, implies that they were Dravidians. The statement, by Herodotus, that the philistines originated in India, makes sense if interpreted from this standpoint: the philistine's theology, like the Chaldeans from which philistine culture emerged, was Harrapan.

The Harrapan pantheon was dominated by a mother-earth goddess, *Shakti*, and her phallus-symbol consort, *Siva*. This *Shakti* is the same goddess as the Chaldean *Ishtar*, identified by the New Testament as the "Whore of Babylon." She is the Egyptian *Isis*, the Sabean *Athtar*, the Philistine's *Astarte-Venus* [whence Phoenicia, Venice], the phrygian *Cybele*, and the Russian *Matushka Rus*. *Siva* is also the Egyptian *Osiris*, the semitic *Satan*, and the consort of *Cybele*, *Dionysos*. Similarly, the Egyptian *Horus* is the philistine "St. George" cult's figure—imported from the orient, by way of Venice and Genoa, into thirteenth-century England. *Horus* is also *Lucifer*, and *Apollo*.

The point is not "merely" that these indicated religions were one and the same, at least as differing sects of the same religion may be the same on common essentials. Religion is the most efficient element of the cultural determination of both conscious and unconscious mental behavior, and hence the social practice shaped by human judgment. Any religion can be mapped as a latticework characterized by "hereditary features," features which expressed the embedding of certain axiomatic elements of belief in each and every "theorem" consistent with that religious belief as a whole. These axioms of religious beliefs are chiefly four:

1. The ontological nature of God;
2. The ordering of universal creation;
3. The existence of individual man within universal creation;
4. The relationship between God and individual man with respect to the elaboration of universal creation.

If one knows what actual or implicit religious beliefs are embedded in the prevailing aspects of a culture, one can predict broadly the behavioral characteristics of that culture over spans of generations. The four indicated axiomatic features of belief are key to such determinations.

All of the characteristic features of cultures and cultural-political factions associated with the "Whore of

Babylon's" religious-belief matrix are consistent with the indications supplied by examining the Whore of Babylon from the four-fold standpoint indicated. In that sense, the Harrapan and Mesopotamian cultures are identical. This applies also to the Isis-Osiris-Horus cults of Egypt, of the Roman imperial "mystery religions" (Gnosis), and the Gnostic and Sufi cults spawned with aid of Byzantine emperors of the first millennium A.D., beginning with Constantine. The Assyrian, Babylonian, Persian, and other "empires" of the Mesopotamian series, and the Roman, Byzantine, Ottoman, Austro-Hungarian, and Russian empires later, are each and all forms of social organization, of political institutions, of law, and so forth, consistent with the religious-cultural matrix of the Shakti-Whore of Babylon species.

These Whore-of-Babylon cultural species are of an opposite character, directly opposite cultural matrix, not only to the Judaism of Moses and Philo of Alexandria, as well as the Christianity of St. Augustine and the Apostles. On this point, Judeo-Christian belief and culture are ecumenically congruent with the classical-Greek republican culture as typified by Solon of Athens, the tragedies of Aeschylus, the geometrical principles of design of the Acropolis, and the dialogues of Plato. There are echoes of this platonic-neoplatonic cultural matrix in crucial features of the Vedic and pre-Vedic astronomical calendars; that, as we shall identify and summarize the argument a space ahead, here, is key to the second point under consideration.

Friedrich Schiller, who was a leading historian of his time,<sup>11</sup> as well as poet-dramatist and leading thinker of the German republican circles of his last decade of life, proposed that 2,500 years of Mediterranean-European history be ordered by analysis as pivoting upon a conflict between two opposing forces: the republican current traceable to Solon of Athens, and the oligarchical current typified by the Sparta of the mythical Lycurgus, Sparta and Greek [Cadmian] Thebes are cultures modeled upon the Whore-of-Babylon religious-cultural matrix. The republican current of classical Greece, and Apostolic Christianity, define the same general cultural current and converge upon kindred forms of political institutions and social practices. The way in which such opposing religious-cultural matrices bear upon matters of scientific method is adduced most easily by considering three distinct types of professed monotheisms in

11. Schiller was Professor of Universal History at the University of Jena.

terms of the four axiomatic features indicated above. All professed monotheisms are broadly divided between nominally rationalist and professedly irrationalist theologies. Irrationalist monotheisms and polytheisms are essentially interchangeable in axiomatic features; our treatment of irrationalist monotheism thus subsumes the crucial features of the polytheisms. Of the rationalist theologies, these include two mutually-exclusive species. Hence, it is sufficient to consider only three categories of theologies to encompass all the principal forms of culture to be considered.

Nominally rationalist theologies are divided into two species. In the first, the elementary phenomena of religious-cultural belief are of the form of transitive verbs. In the opposing, second species, the terms of elementary notions are in the form of nouns. This distinction was emphasized by Panini, for example. By rigorous implication, the elementary mathematical-ontological thinking of the former species of culture is geometric, as we have summarily specified synthetic geometry. The second species, based on the noun-form, takes the standpoint of arithmetic, treating the ordinal-cardinal integers as the only axiomatic reality of mathematics.<sup>12</sup>

So, we have the four axiomatic features of each of the three species, as follows.

### **Rational-Geometric**

1. God as the “Creating,” a consubstantiality of the efficient, substantial principle of creating of the universe [i.e., Logos] consubstantial with the unity of the transfinite being [God], who is “I am that I self-elaborate Myself to become.”

2. Ordering of Creation. A negentropic universe, such that the Logos is of the form of a negentropic principle of action, a principle congruent with the verb “to live.”

3. Individual Man: To the degree man partakes of the irrationalist hedonism of beasts, every individual is born in an infantile condition of “original sin.” However, man’s creative-mental potential is to bring his will for practice into agreement with the Logos. In this second aspect of man’s twofold nature, man is, in the words of Cusa, “in the image of the living God.”

4. God and Man: By perfecting his individual will toward agreement with the Logos, man’s practice “participates in the work of God” in altering the universe.

12. E.g., Leopold Kronecker, Bertrand Russell, et. al.

### **Rational-Noun**

1. God: “God” is defined as a noun, an object. He is the “monarch” of the universe, in the sense of an absolute autocrat.

2. Ordering of Creation: The universe is ordered by unchangeable mechanical laws, of the form of a consistent latticework premised upon Euclidean-like axioms and postulates.

3. Individual Man: Man is a biological object, connected to God by means of a spirit superimposed upon that biological entity.

4. God and Man: Man’s duty is to earn merit with God by obeying the monarch-like Will of God.

### **Irrational-Noun**

1. God: God is an absolute monarch of the universe.

2. Ordering of the Universe: God acts as He chooses; only his Will is efficient.<sup>13</sup>

3. Individual Man: Man is a beast with no function but to acquire merit by obedience to the capricious Will of God.

4. God and Man: From moment to moment, God predestines whom shall be made happy and whom destroyed.

Of the latter two [rational-noun, irrational-noun], Nietzsche echoes tradition in classing the first of the two as “Apollonian,” and the second as “Dionysian.” Sufism is most exemplary of modern forms of Dionysian (e.g., Satanic, Osiris) cults.

In the case of European culture, although the Augustinian matrix distinguishes Christendom from Byzantium, Byzantine Gnosticism and Sufism penetrated the West through the Crusader and other religious monastic orders, and through the oligarchical factions in the West centered upon the old imperial patrician families of Rome and the Guelph/Black Guelph rentier-financier oligarchies centered upon Venice and Genoa. Hence, both the churches and political institutions of Western Europe and the Americas are penetrated by Gnosticism and Sufi irrationalism to greater or lesser degrees, although the Augustinian matrix remains the embattled substrate of Christendom to the present date.

One of the more significant modern conduits for bringing Sufism into Christendom has been the Jesuit order, created to serve as the international secret-intelligence arm of the Venice-centered Black Guelph fac-

13. E.g., Bernard of Clairvaux against Abelard of Paris, and also William of Ockham.



*René Descartes*



*Isaac Newton*

tion. This was recognized early in the history of the Jesuits; Ignatius Loyola narrowly escaped the judgment of the Inquisition on the basis of the naked similarities of his *Spiritual Exercises* to the Sufi's spiritual discipline. This bears directly on the seventeenth-century eruption of a Jesuit-led campaign against the influence of Cusa, Leonardo, Kepler, et al., through the Genoese-controlled Francis Bacon [against William Gilbert], the Jesuit Robert Fludd against Kepler,<sup>14</sup> and the work of the Jesuit René Descartes. The case of Augustin Cauchy, during the French Restoration period under the Holy Alliance, is analogous to Descartes' case; Cauchy was dispatched to the work of attempting to destroy French science under guidance of Abbot Moigno, whose writings on this matter of policy are luridly explicit. This is key to the Newton-Leibniz controversy, and also to the more important controversy of Leibniz's attack on the threat to science and morals posed by the doctrines of Descartes. The Leibniz-Newton controversy is a central feature of the seventeenth and eighteenth centuries' controversy over method in science.

It is necessary, for clarity here, to summarize a few facts concerning the "differential calculus" controversy. There is no possible argument of competence

14. Fludd, whose program has been coopted by the Jungians [such as Wolfgang Pauli], was the Rosicrucian Jesuit Sufi leader who became the grey eminence of the Stuarts during their exile on the continent. He was the architect of what became the London Royal Society (under William Petty) and the establishment of Scottish-Rite "speculative" freemasonry.

against the fact that Gottfried Leibniz was first to develop a differential calculus, a first version of which he submitted to a Paris printer in 1676. The specifications for such a calculus were provided by Kepler. Leibniz employed [chiefly] B. Pascal's work on difference-series to solve the task as given by Kepler. Although a chest of Newton's laboratory papers survives, there is no evidence of any papers dedicated to the calculus's development; in fact, the work credited to Newton appears to have been done by Hooke. Dr. Parpart has worked through relevant features of the

Leibniz archive, including portions of the 100,000 manuscript papers thus far more or less 80% untouched by scholars, showing that Leibniz's work of the 1673-1676 period on the differential calculus was already far more advanced than anything seen publicly until much later. Some of this is frankly admitted by Charles Babbage's group in the famous paper "Dotage and D-ism."

More significant than the fact of Leibniz's clear priority—by more than a decade—is the difference in character between the two versions of the calculus. Newton's theory of fluxions is a treatment of a then-long-established work on infinite series, directed to objectives which are frankly cabalistic.<sup>15</sup> The system never worked, such that even the British signed, and adopted a delphic version of not only Leibniz's notion, but Leibniz's calculus as such. [Cauchy's doctrine of limits was employed to effect the distorting parody adopted for this purpose.] Leibniz's method was purely geometrical, following Pascal's efforts to determine number-difference series as geometrically determined. Leibniz's analysis situs was an outgrowth of the same method, as was Euler's continuation of this in his work on topology, and the later work of Monge, Gauss, et al., in the same vein.

The Leibniz-Descartes [hence, also Leibniz-Newton differences] are usefully viewed, especially in our present setting, as reflections of the axiomatic differ-

15. Newton's papers show him a fanatical cabalist, an adherence rampant among Petty's circles at that time.

ences in philosophical world-outlook typified by the contrast between rational-verb and rational-noun varieties of religious-cultural belief. Descartes' reputation as a geometer is deceptive. If Descartes is seen as the opponent of Cusa, Kepler, Desargues, Fermat, and Pascal, an opponent operating to parody and so refute their extant work, the proper estimate of Descartes' treatment of geometry is more easily reached. At the time Descartes wrote, the work of Cusa, Kepler, et al., was hegemonic among scientific circles, and the work of Desargues, Fermat, and Pascal shaped the immediate environment to which Descartes addressed his attacks upon those predecessors. Descartes was of the rational-noun species, to the effect that his geometry is subsumed by notions which are axiomatically arithmetic. The same is characteristic of Newton's work, and of the underlying issues between Leibniz and Newton's supporters during the eighteenth century [and later].

The nominalist empiricism of Descartes and the London Royal Society served as the historical basis of reference for the development of eighteenth-century "French classical materialism." In this instance, examining the correspondence of Voltaire is most fruitful. The entirety of the operation centered around variously the French Encyclopedia and Robespierre's Jacobins was steered chiefly by the Jesuit order in France, with close collaboration with the heirs of Petty in Britain and the Swiss families of Geneva and Lausanne who sponsored Voltaire, Rousseau, Robespierre, the Duke of Orleans, and Jacques Necker's political positions in France. These were the same circles behind the Physiocrats [Dr. F. Quesnay, et al.], who were in turn purely a Jesuit undertaking. Such antics led to the papal banning of the Jesuits [to Russia] during the last quarter of that century. Thus was established the "French materialist" faction in Russia, opposing Leibniz's Petrograd Academy, the materialist influence which played a key role in shaping the Russian social-democrats and Bolsheviks later. This was, of course, also the basis for the doctrines of Karl Marx himself.

Insofar as the researches of an international team, over more than a decade, have been able to determine, not a single valid scientific discovery bearing on fundamentals of mathematical physics was produced by members of the Descartes-Newton-Cauchy-Maxwell-et al. faction. Some secondary, sometimes useful experimental discoveries, yes, but nothing bearing on fundamentals. Simple hypothesis? Yes. Higher hypothesis? No.

This is characteristic of the Mesopotamian series of cultures, and the empires modeled upon the Chaldean-Babylonian-Persian model: Rome, etc. In each case some major invention is attributed to such a culture, investigation shows that not only did such an invention exist elsewhere earlier, but that the oligarchical culture in question acquired the invention directly from another culture. Looting and plagiarism are not properly classed as particularly original even in the animal kingdom, and are not to be confused with discovery. At best, such cultures have often shown themselves—at least for a period—capable of extending the range of application of scientific principles acquired, but not as capable of generating a genuine scientific-technological revolution.

Had such oligarchical cultures prevailed, mankind would still be in a primitive gathering-stage of economic existence.

### **Pre-Vedic Astronomy and Philology**

Comparing the Mesopotamia series of cultures with the evidence of earlier, pre-Vedic and Vedic astronomical calendars, we must be inclined to the working-assumption that civilization was set into motion by an earlier culture, an earlier culture of religious-cultural characteristics opposite to those of Whore-of-Babylon cultures. As Plato reports, as a matter to which he gives great practical importance in statecraft generally, the rise of civilization during the period from approximately the Eighth through Fourth Centuries B.C. was not merely a revival from the immediately preceding descent of the Mediterranean into a dark age, after the period of the siege of Troy. There were earlier great catastrophes which had plunged humanity backward for extended periods.

The practical implication for today is that we appear presently committed to plunging civilization into one of the worst and most prolonged such dark ages ever.<sup>16</sup>

Respecting the Vedic and classical Sanskrit literature itself, we have no doubt that the overthrow of the evil Harrapan culture was a happy accomplishment in net effect, but the Aryan invaders who accomplished

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16. Marilyn Ferguson's **Aquarian Conspiracy** [Los Angeles, 1980] is to be taken seriously, not only as efficiently representing the policies of the Palo Alto circles around Stanford's Willis Harman, but also the networks associated historically with Bertrand Russell, Robert Hutchins, Aldous Huxley, and the Pugwash Conference and Club of Rome crowds generally: the countercultural "post-industrial" world-federalist utopianism.

this had undergone devastating cultural shocks prior to their arrival in the subcontinent. We know of two distinct such catastrophes. The first is emphasized by Tilak: the producers of the polar astronomical calendars had been driven by glaciation from their Arctic home. Then the Indo-European stock appears to have settled in central Asia during an extended period prior to the aridization of the region. This latter catastrophe had projected the Indo-European migrations into Europe and southern Asia during and after the third millennium B.C., gradually overwhelming and almost eradicating the remnants of an Atlas-culture dominating Western Europe, and becoming the Greeks, the Hittites, the Celts, and so forth.

Nonetheless the progress accomplished apart from the effects of such catastrophes is clear enough for our purposes.

The grand program for philology stipulated by Wilhelm von Humboldt bears directly on the issues here. Humboldt's work in philology proposed that first an Indo-European philology be developed, to define the philology of a common root-language. Using the experience so gained, philology must compare Indo-European language-species with Semite species, with Chinese species, and so forth. There are indications that many of these language-species have a common root, emphatically those associated with central Asian origins. Dr. Parpart noted recently the work of a scholar in Japan, who has documented evidence that modern Thai is a direct offshoot of the dominant language of ancient China. He concentrates on the musical inflections used, and suggests that modern Chinese has lost some of the inflection still preserved in Thai. In this respect, classical Greek, classical Sanskrit, Thai, Chinese, etc., have notable kinships. If we reconstruct a musical form of Indo-European, then the indicated comparison can be pursued accordingly.

The central question here is to what degree are the most advanced cultural features of ancient Indo-European, Chinese, etc. language-cultures common among such cultures by way of "lateral transmission," or "duplication of discovery," or attributable to a generating feature of some common language-culture? If the time span indicated by the Gulf-Stream version of Tilak's thesis is to be the basis for our reckoning, the case for importance of a common language-culture-origin is very strong.

Whatever further investigation proves on such points, such a working-hypothesis aids us by pushing

our inquiries in the most fruitful directions. The universe is a stubborn critter: to obtain the right answer from it, you must first ask it the right question.

Standing back from the specifics of each period and place in the sweep of history [and pre-history], we ought to be astonished, at first thought, that two facts persist among all of the instances to be considered. First, that there are only three rigorously distinguishable moral types of individual personality and culture, corresponding to the "Inferno," "Purgatory," and "Paradise" of Dante Alighieri's *Commedia*.<sup>17</sup> Second, that these three moral types correspond to the primary combinations possible of two, opposing principles [e.g., republican versus oligarchical].

The latter two, opposing principles are implicitly the divine spark of creative-mental potential within each human individual, opposed to the bestial impulse ["original sin"] of irrationalistic hedonism ["anarchism," "existentialism"] also embedded in that same individual.

In the instance of the maturation of the individual within the setting of a moral form of society or culture, loving instruction of the anarchistic infant by the parents and others, nurtures the divine spark within the infant and child. By loving always only that in the infant and child which corresponds to the development and exercise of the divine spark, the new individual is encouraged to adopt the identity of a lovable personality accordingly. Maturation acquires thus the form of the new individual's inner struggle between the growing power of the divine spark and the opposing, bestial, impulses of anarchistic hedonism.<sup>18</sup> This is accomplished most effectively by avoiding what Riesman et al. might prefer to describe as merely an "other-directed" shaping of the social-identity preferences of the new individual; the child must not "be good" merely because this prompts favorable responses by parents and others. The child must discover that the good aspect of his or her nature is also an efficient power in the universe, the power of creative discovery. Of this, the child might say: "I can prove it for myself," or express the same point of view in asking the question "why, Daddy?"

If Daddy replies to the child's "Why?," with the ir-

17. Most notably, these three types are discussed under the heading of "Phoenician myths," by Socrates, in Plato's *Republic*. The same matter is treated by St. Augustine.

18. Adam Smith's "Invisible Hand," and Jeremy Bentham's hedonistic principle of his and John Stuart Mill's felicific calculus (utilitarianism), are examples of advocacy of immorality.

rationalist's: "Because your mother told you to do it," the child is being degraded thus into a cultural outlook of the "irrationalist-noun" variety. Better reply by Daddy would be either, "Come, I'll try to show you why," or, if the matter is beyond the child's reach, "When you're a little older, you'll be able to work this out for yourself."

If a child, asked what the child wishes to become in adulthood, replies, "I'm going to be..." ask that child "Why?" the child replies, in effect: "Then I'll be able to..." the implicit morality of the child's argument informs us of the probable direction of moral development occurring in that young person. If a child locates a sense of moral identity in the development of efficient powers of discovery, the processes of moral development are to that degree predominant, to that degree mastering the contrary, hedonistic impulses.

The same principles of development are also characteristic of cultures.

Immanuel Kant reacted strongly against the immorality of David Hume.<sup>19</sup> What Kant denounced, with as much vehemence as Kant's public practice permitted him, was the immorality of that thesis of Hume's which forms the central principle of Hume, of Adam Smith, of Jeremy Bentham, and "nineteenth-century British philosophical radicalism." Hume, Smith, et al. argued that the imperfection of man's reason prevented the individual, or society, from precalculating the consequences of choices of behavior among the individual members of society, or by society as a whole. [Hence, Kant's charge of "philosophical indifferentism" against Hume.] This argument was employed by Hume, Smith, et al.<sup>20</sup> to propose that individual actions should be gov-



*Friedrich Schiller*

erned solely by "original and immediate instincts . . . of love of pleasure, and of dread of pain."<sup>21</sup>

As far as it went, Kant's extensive rebuttal against an empiricist morality was sound. The fallacies otherwise embedded in Kant's argument, already concomitants of the earlier **Critiques**, showed themselves at their worst in Kant's **Critique of Judgment** and his commentaries on aesthetics generally. It was on the latter point that Kant was most directly and efficiently corrected by the Friedrich Schiller Kant otherwise admired so much. Kant's essential argument on morality was presented in relatively most compact

form in his **Critique of Practical Reason**.

Summarily, Kant argued that the "repression" of prohibited kinds of impulses and acts by society negated those hedonistic impulses within the individual. However, this "repression" was not merely a negation. Since this negation made the individual a social person, the negation corresponded to the individual's vital self-interest in establishing and maintaining a social identity. The desire for this social identity negated the negativity of "repression" [negation of the negation]; in this way, morality was described as made positive [by such "negation of the negation"].

Schiller corrected Kant on this point, showing that effective productions of the creative-mental potentials of the individual are a directly knowable form of the Good, and that, hence, morality need not be premised merely on the kind of double-negativity which Kant prescribed. Apart from this specific correction of Kant's views on aesthetics, the entirety of Schiller's later productions of drama are based on the principle he cited against Kant's error.

19. See I. Kant's **Prolegomena to Any Future Metaphysics**, and also his preface to the first edition of his **Critique of Pure Reason** [passim].

20. Adam Smith was a protégé of David Hume, and most directly influenced by Hume's **Treatise of Human Nature**, the chief reference-point for Smith's own 1759 **Theory of the Moral Sentiments**. The doctrine

of the Invisible Hand is derived directly from the cited line of argument, in the **Wealth of Nations**.

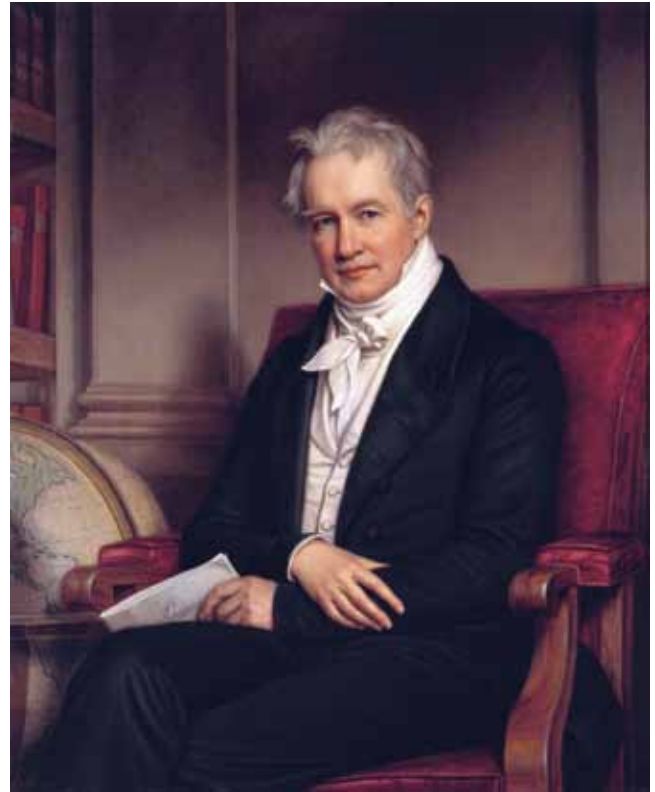
21. Smith, **Theory of the Moral Sentiments**, as cited in LaRouche and Goldman, **The Ugly Truth About Milton Friedman** [New York, 1980] p. 107.



Commenting upon the Jacobin Terror in Paris, Schiller said famously: “the century has produced a great moment,” referring to the trans-Atlantic movement led by Benjamin Franklin, “but,” referring to the rise of the Jacobins in France, “the moment has found a little people.” Using his resources as a leading historian of his time, Schiller composed a series of tragedies based on leading problems of statecraft in modern history of nations. Although Schiller employed some dramatic license, to deviate slightly from events as they had actually occurred in terms of individual personalities of the drama, the problems posed in each drama were true to life insofar as the tragic events as a whole were concerned. The function of these dramas, as Schiller himself described in considerable detail in his writings or, his methods of composition, was to show to audiences that in the course of critical events the point is reached at which an available solution is clear, but in which influential figures and general populations each fail to act upon that solution; the failure to act so then traps the population in a tragic development which the population is thereafter unable to resist. These immensely popular dramas of Schiller have been proven to have been the single leading moral influence which later mobilized the German people to fight the successful Liberation War against Napoleon Bonaparte—a war led by such friends of Schiller’s as Freiherr vom Stein and Wilhelm von Humboldt.

It is possible, in fact, as well as abstract scientific reflections, to mobilize a leading force of a people to foresee more or less accurately the outcome of the policy-actions of nations, and also the contributions to those actions by individuals. Although Kant was admitted to the inner elite of the circles around Schiller, Koerner, von Humboldt, et al., it was Schiller, not Kant, who made possible the defeat of Napoleon’s tyranny—just as the 1815 Congress of Vienna, and Metternich’s Prussian agent G.W.F. Hegel, launched an inquisition against the writings of Schiller, as well as against Schiller’s friends, in the effort to reverse the republican achievements of 1809-1814 under vom Stein, Scharnhorst, Humboldt et al. The efficient power to uplift a people, morally, and in its general condition otherwise, is direct access to and service of the creative-mental principle.

Nonetheless, Kant’s thesis of the **Critique of Practical Reason** is an exceptional insight into the mechanisms of mind as a resident of Dante’s Purgatory. The resident of Purgatory, like Kant, adheres to morality



Joseph Karl Stieler

*Wilhelm von Humboldt*

with a sense of duty, and is always conscious of duty as in some sense an act of self-denial, an act of “repression” of his bestial, irrationalistic [anarchistic, existentialist] “original and immediate instincts.” He is not a resident of Paradise, not one of Schiller’s “Beautiful Souls”; yet, at worst, the resident of Purgatory is fortunately not a radical empiricist of the sort recommended by Hume, Smith, Bentham or John Stuart Mill, not a resident of the Inferno.

Even among the best modern republics, such as our own has been during its best periods, the development of our culture, and the maturation of individuals within that culture, has been defective to the degree that the moral strata of our electorates have been chiefly residents of Purgatory, not Beautiful Souls. This defect of even moral populations was a subject of special attention by Plato, notably in his **Republic**. He stipulated that the design of republics must therefore be such as to efficiently deal with such defects of maturation within the electorate generally. He argued, as Solon of Athens had argued the importance of writing out his constitutional poem to guide Athens thereafter, that a people must bind itself to a written body of constitutional law,

and practice obedience to that law, rather than relying upon its own independent judgment; hence, in modern times, we speak of our republic as a government under law, rather than as a government by men. It were desirable that electorates be dominated by Beautiful Souls—residents of Dante’s Paradise. Lacking thus far that circumstance, we must compensate for the defects in our own people by choosing republics premised upon constitutional law. For obvious reasons, Plato described this expedient arrangement as “the second-best form of republic.”

It should be seen readily enough, that the philosophical outlook of the residents of Paradise is characteristically of the religious-cultural species we identified as “rational-verb,” and Inferno’s “irrationalist noun.”

It is “human nature” that the moral impulses of the individual and cultures composed of individuals, are not more than two: the irrationalistic, hedonistic impulses which echo the “original and immediate instincts” of a beast, in opposition to the creative-mental potentials, the divine spark which distinguishes man from the beast. Hence, only two generative impulses are possible within individuals and cultures.

The behavior of the individual, under the conflicting influence of such two impulses, is always governed by what rigorous clinical psychology can distinguish in each instance as a controlling sense of personal social identity. Individual judgments are not premised on the individual’s sense of biological identity, but of social identity subsuming biological identity. This choice of social identity regulates the person’s definition of “self-interest.” This sense of identity, and notion of self-interest, is defined primarily by which of the three types of moral identity (Inferno, Purgatory, Paradise) the individual has adopted. That is, the individual identifies either:

1. Completely with irrationalist hedonism (“original and immediate instincts”),
2. Completely with a “Kantian” sense of social identity (Purgatory), or
3. Creative-mental life (Paradise).

That choice of identity defines perceived self-interest. This sense of self-interest directs the exercise of judgment. Judgment so directed determines human activity, and also determines how the individual judges the results of his activity.

The first, the choice of the Inferno as the location in which one’s identity (and self-interest) resides, is dominated by subordination of rationality to “original and

immediate instincts,” as Dante describes this so aptly. The second, the Kantian, might appear, at first glance, to have a dual identity, a conflict between morality and “original and immediate instincts.” Yet, as Kant argues correctly to that degree, the resident of Purgatory locates his or her identity in the moral “sense of duty” to prohibit those actions of “original and immediate instincts.” which are prohibited by the morality. The third, Paradise, prompts the individual to locate his or her identity, and self-interest, in that policy of self-development and practice which fosters predictably some durable benefit to present and future generations.

It might appear, to superficial observation, that the resident of Paradise and Purgatory eat and clothe themselves in similar manner. Yet, the resident of Paradise views these matters quite differently than does the Kantian. “I require that which affords me the power to contribute to present and future generations”: For the Kantian, the end-result of the morally permitted form of sensuous individual experience is the individual pleasure or other individual benefit of the individual in himself. For the resident of Paradise, the individual benefit of such sensuous experience is limited to its universal consequences, the contribution of that individual sensuous experience to the individual’s power to accomplish some necessary good for present and future generations. The sense of self-interest embodied in the individual action is different. Such a distinction may appear almost indiscernible in an isolated action of this sort; it becomes clearly discernible when we compare the general policies of ordering of personal life between Beautiful Souls and Kantians. The Beautiful Soul subordinates what might be defined as a Kantian sort of self-interest to a higher purpose, a universal purpose. Imagine Friedrich Schiller eating and drinking his favorite wine during the periods his life was dedicated to fashioning tragedies intended to uplift the German people to a state they would not repeat those errors of France through which the Jacobins came to power; that is the eating and drinking of a Beautiful Soul.

Only two kinds of opposing impulses exist within individual persons; the bestial impulses of irrationalist “original and immediate instincts,” opposing the sense of beauty in efficiently developing and exercising creative-mental potentials in service of universal good. These two, opposing impulses permit only three categorical kinds of personal identity to occur within individuals and cultures. We witness only two opposing forces in the making of all human history and pre-his-

tory, and we witness only three categorical cultural types emerging in this sweep of human existence as a whole. We witness such because nothing else were possible. Clearly, the following table of comparisons follows:

<i>Identity</i>	<i>Cultural Matrix</i>	<i>Religion Type</i>
Inferno	irrationalist-noun	SHAKTI-ISHTAR
Purgatory	rational-noun	GOD IS KING
Paradise	rational-verb	APOSTOLIC CHRISTIANITY

This summary table is adequate to guide us in interpreting those characteristics of cultures bearing upon the potential of those cultures to foster and assimilate fundamental scientific discovery.

The ascent from baboon-like gathering-cultures toward civilization is implicitly inevitable, since the divine spark of creative-mental potential is that which absolutely, categorically distinguishes mankind from baboons. It were worse than absurd to attempt to adduce the “evolutionary development” of human characteristics from the great apes, as if by aid of Boltzmann’s LaPlaceian theory of fluctuations. Human development depends upon a quality categorically absent from the great apes, some feature of the human organization corresponding to the human soul, congruent with the verb “to think creatively.” This is the characteristic of human cultures, which distinguishes “human ecology” absolutely, categorically from “animal ecology.” To attempt to apply “animal ecology” to mankind is an absurdity in principle, as absurd as applying the “ecology” of “societies of rocks” to the biosphere generally. The possibility of Paradise is implicit in the human soul; that is not only a theological doctrine, but the one empirical fact about human existence which is absolutely incontestable, man’s increase of his species’ potential relative population-density through technological progress.

From that standpoint, it is not astonishing that a pre-Vedic culture could have developed an astronomy far more advanced in quality than that of cultures of the Mesopotamian series.

The problem to be considered is not how mankind could have developed a stunningly beautiful advance in astronomy so early. The problem to be considered is, mankind having achieved such a level of culture, how were it possible culture could degenerate to such levels as the Mesopotamian series?

The answer is before our eyes, both in John Dewey’s programs for public education, and in the more radical version of such policies promoted by the National Education Association today. The essence of the practice, in both of these abominations, is asserting the “freedom” of the child’s impulses at the expense of developing rigorous knowledge in the child and adolescent. “Permissive child-rearing” is of the same species of morally destructive policies. It is chiefly through the impact of such morally degraded school room and family policies upon several successive generations of our population, that we as a nation have been brought into a moral condition increasingly approximating that of the Biblical Sodom and Gomorrah. In brief, such policies intervene against the development of the child, to promote the interest of bestial “original and immediate instincts.”

The conditions of life, most emphatically the low life-expectancies of gathering-societies, are obviously a great impediment to unleashing of the divine spark within the individual. Lacking a more rigorously defined set of parameters, it is fair to use our rough estimate, that the life-expectancy of a primitive gathering-culture must be significantly below twenty years of age. It would be useful to produce a study of the estimated demographic characteristics of such a culture: life-expectancy of surviving infants, rates of infant mortality, differential rates of mortality among males and females, and among males for all reasons as compared with females for reasons other than childbearing. Lacking such clearly feasible studies, it is fair to estimate that females would predominate in the adult segment of the population, and that the majority of the population would be composed of pre-adolescent individuals.

In such circumstances, the cult of the mother-goddess and “matriarchical society” are most probable features of culture. The predominance of children still dominated by strong maternal dependency—e.g., relative infantilism of character-formation—means that the infantile (hedonistic-irrationalist) element must tend to be the characteristic of such cultures. This is no conjecture: the characteristics of all Whore-of-Babylon forms of religious-cultural matrices conform precisely to features adduced from the case of such a primitive and degenerate form of “matriarchical” society. The ambiguity, in such cases as Shakti-Siva, or Isis-Osiris, whether Siva-Osiris is simply the consort or the incestuous son

of the mother-goddess is consistent with that connection to primitive gathering-societies. In both instances, Siva and Osiris, the male phallic figure is clearly the subordinate figure; the Cybele-Dionysos connection is exemplary, as is the equivalence of Siva Osiris-Satan-Dionysos: nasty characters all. The addition of the Horus-Lucifer-Apollo figure reeks of primitive, incest-ridden societies of the most abominable ethics. Perhaps the National Educational Association would be pleased by such past outcomes of the policies it presently promotes. Sodom and Gomorrah, and the use of the name “sodomy,” implies the general results to which NEA policies must tend to lead.

We find a relevant case in the process leading into the emergence of Nazism in Germany. Generally, the Conservative Revolution of former Waffen-SS volunteer, Dr. Armin Mohler of the Siemens Stiftung, describes the process with about as much accuracy as one could expect from a hard-core philosophical Nazi. It was the “romantic movement” in Germany, promoted so energetically in the boudoir of Switzerland’s Madame de Staël, which is the philosophical root of Nazism in Germany historically. However, Mohler leaves out of account certain of the crucial circumstances.

As Helga Zepp-LaRouche has documented in several locations,<sup>22</sup> perhaps the highest point of development in European culture was reached during the upsurge of the German nation in support of the Liberation War against Bonaparte’s tyranny. Everything which Leibniz, Franklin, and others had worked to set into motion was rallied in Germany around the circles of collaborators of Schiller and Freiherr vom Stein. Such giants of music as Wolfgang Mozart and Ludwig von Beethoven were integral parts of the same Franklin-linked trans-Atlantic conspiracy as Schiller, von Cotta,



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*The Congress of Vienna.*

et al. The joy, the cultural optimism in Germany, from the onset of the Liberation Wars, until the eve of the 1815 Congress of Vienna, is without known precedent in modern European history. The superiority of German classical culture—in music, poetry, drama: the “nation of poets and thinkers”—from that period, has been justly, variously envied, emulated, and celebrated in the literature and concert-halls of the civilized world since. Upon these same foundations, the recognized world-superiority of German science and advances in technology, through World War I, was established. How could a people who had once so excelled degenerate into Nazism?

It began, as Helga Zepp-LaRouche emphasizes with the Congress of Vienna itself. The Venetian nobleman, Count Capodistria, which Venice had imposed upon Czar Alexander I as Russia’s foreign minister, employed his tools, Clement Prince Metternich and the notoriously odious Talleyrand, to impose the nightmare of the Holy Alliance upon continental Europe. Whether through corruption, simple meanness of character, or folly of weak-mindedness, the ruling Hohenzollern of Prussia betrayed all those around Freiherr vom Stein who had just earlier saved Prussia and the Hohenzollern throne from Napoleon’s destruction. That monarch betrayed the entire German people, and so the overwhelming majority of those people regarded the development. Soon, Schiller’s and Humboldt’s ad-

22. A forthcoming book, including her introduction, will supply a freshly documented overview of the Nazi phenomenon to German readers.

versary, the Metternich agent, Professor G.W.F. Hegel, became Prussia's "state philosopher." For a time, Schiller's writings were virtually banned from Prussia! In betrayal and frustration, Germany sank into despair, into the cultural pessimism which made possible the recruiting of the children of the pre-1815 German republicans to Guiseppe Mazzini's 1848-1849 radical upsurge [e.g. Karl Marx].

With the later rise of Bismarck, the oligarchical forces behind the dissolved Holy Alliance strengthened their grip on Germany. By the beginning of the 1890s, the forerunners of Nazism were already afoot in circles including that of Chamberlain, Neitzsche, and Bakunin's old Young Germany crony, Richard Wagner. The World War, the masses of "rootless ones" of a lost generation of soldiers returned from the fronts, and the destruction of institutions and hope under the terms of Versailles, crystallized the successive moral defeats of the post 1814 period into the Dionysian orgy of Nazism.

Notably, the cultural matrix chiefly referenced for creating Nazism in Germany was Russian culture. "Solidarism," which produced Gregor Strasser and Josef Goebbels, was explicitly a Russian import of "Tolstoyian" ideology. "Third Reich" was a name contributed to Nazi dogma by Dostoevsky's influential Berlin publicist, Moeller van den Bruck; the model for this was Dostoevsky's demand for a "Third Rome"—a pan-slavic world empire with Moscow as its capital. The Nazi's chief "philosopher," Alfred Rosenberg, who completed his education in Bolshevik Moscow before arriving in Bavaria, was another leading Russophile among Nazi ideologues. Germany lacked the elaborated "counterculture" to meet Houston Chamberlain's, Nietzsche's, Rosenberg's, and Hitler's requirement that the last vestiges of Judeo-Christian civilization be uprooted from Germany: the "blood and soil" cults typical of Russian culture were therefore imported as the model of reference for creating "Nazi culture." The difference between the Russian Dostoevskyans and the Nazis was the issue of which "race" would prevail in establishing the "Third Rome" [Third Reich] which had been the impassioned aspiration of Russian culture since the second coronation of Ivan the Terrible. [So, in 1941, it was the Nazi legions of the Russian Raskol'nik, Dostoevsky, which butchered invaded Russia in the manner of Russian berzerkers; and, it was Dostoevsky's Russian Raskol'niki who struck back with a berzerker's axe-wielding fervor of murder and rape indigenous to

the Russian variety of this cultural strain—as Ilya Ehrenberg's war-time propaganda from Moscow luridly attests.]

The account of the Atlas people in Didorus Siculus's account can not be put aside as merely a legend. The corroborating evidence, both internal and circumstantial, is too abundant. A maritime culture's colony was established near the Straits of Gibraltar. The indigenous people were a brutish gathering-society culture, to whom the urban maritime colonists introduced agriculture. Inter-marriage occurred, according to the account. The children of a concubine revolted and took power in a bloody, three-way coup d'état. The victors of that coup d'état, led by the son of the concubine, Zeus, constitute the kernel of the Hesiodic pantheon, the Norse gods, and so forth.

This intersects events which Plato attributes to about 10,000 B.C. or earlier, a dating which agrees with as much evidence as we have on the latest antiquity for existence of a maritime culture of the type described in the Didorus Siculus account.

If a culture permeated with the Shakti-Ishtar religious-cultural matrix assimilated the technology produced by a more advanced culture, that appropriation of technology provides the kind of picture exhibited by the morally degenerated cultures characteristic of the Mesopotamian series. The troublesome point here is that we might tend to assume that the assimilation of advanced technology should foster improvement in the religious-cultural matrix in such a case. The solution for the apparent paradox so posed is obtained readily, by recognizing that cultures as a whole are governed by a controlling sense of identity, in a sense coherent with the control of individual behavior by a categorical type of social identity. In the cases that two opposing cultures are blended, the outcome is determined by which of those cultures supplies the sense of identity for the leading institutions of the combined culture.

In the instance of a "blood and soil" culture, the "racialist" element is axiomatic. A "Whore of Babylon" culture defines itself in terms of a particular group of people associated with the "blood and soil." This is consistent with the kind of infantile matrix of such religious-cultural currents' connections of "matriarchical" primitive cultures. The "blood and soil" feature is not something added to the Shakti-Ishtar matrix, but a coherent feature of the principled elements earlier identified.

Compare the recent centuries' history of the United

States, France, and Germany (for example). Up to World War I, these nations' populations were a composite of numerous immigrant strata, each of which became more or less "American," "French," or "German," respectively at fairly rapid rates. The relatively more advanced the cultural level of any particular group of immigrants, in each case, and the more rapidly it reached economic parity with the nation's population generally, the more rapidly it was assimilated. Conversely, strata immigrating from very poor foreign populations, with low levels of literacy, and who progressed slowly in assimilating economically, the rate of assimilation was relatively slower. Apart from embedded racial or ethnic prejudices, the populations of these nations are relatively the least racist in the entire history of culture known to us.

This happy feature of our national cultures (at least, relatively speaking) is a peculiarity of Western Christendom. Those of us typical of this cultural heritage are often astonished to think of a fellow-citizen as being of a different race, or different ethnic origin otherwise. It is the character, the mind of the person which interests us, and which is usually the leading premise of all our practical judgments respecting that person. Our national consciences tend to be offended, ashamed, when we are confronted with prejudices, especially injustices, linked to some biological distinction in the race or national origin of another person. We err, however, whenever we of this cultural heritage of St. Augustine project such happy norms upon the presumed behavior of other cultures. We find it difficult to reconstruct in our own minds that special sort of world-outlook which demands a bloody vendetta against all people of some differing religious affiliation or racial or national-origin characteristics. It is sometimes difficult for us to regard as more than an unfortunate, temporary aberration the explosion of some degraded outburst as: "I don't care about the rest of the world; I care only about my race!" We find it difficult to believe that vast extent



*Augustine of Hippo (354–430 CE) as painted by Botticelli.*

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of cultures on this planet, still today, not only believe that, but have that prejudice embedded in them as a primary motivation.

We fail to grasp what a revolutionary change it was, that St. Paul undertook in his mission to the Gentiles, bearing the message of the opening verses of the Gospel of St. John. Neither Plato nor Socrates would have disagreed with Paul's policy, but Plato's work lacked that specific genius which the Jesus Christ of St. John's Gospel afforded humanity. That a religion, Christian Judaism, should not limit its mission to the Jews, but should embrace all mankind as brothers, was, as New Testament theology insists, a New Dispensation in the ordering of

mankind's affairs. Perhaps, long, long ago, in a time before Wilhelm von Humboldt's version of the Tower of Babel occurred, such a notion of the unity of mankind existed among some common forebears of Indo-European and Chinese culture, for example. If so, it was later lost, and lost for a very, very long time. Only with the opening passages of John's Gospel and the mission of Paul to the Gentiles, did at least part of humanity regain that which may have been lost long before. Let us not propose here to meddle in the religious affairs of peoples, but, otherwise, the realization of that moral unity of mankind expressed by Paul's mission is long overdue for this planet of ours.

The idea that culture is "racial" in character, the characteristic feature of the Babylonian and Persian empires, for example, is key to the way in which a degraded sort of religious-cultural matrix resists the moralizing benefits of a superior culture whose achievements it has acquired in one fashion or another.

It is not only true, but rather fundamentally so, that a policy of practice directed toward scientific-technological progress fosters moral development in the culture and population so affected. Yet, the presence or absence of technological advancement does not occur within the setting of a cultural tabula rasa. Moral up-

lifting must fight against both endemic and institutionalized bestiality, not only against the endemic “original sin” of “original and immediate instincts,” but also against hegemonic cultural institutions whose characteristic sense of identity is anti-progress. Scientific-technological progress is a force for moral advancement, but it is a force which must acquire allies within a society if it is to shape the moral policy of practice of that society as a whole. Sometimes, it is necessary that the leading institutions of a nation be destroyed, that mankind might be rid of a degenerate variety of culture. Too often, nothing exists to destroy the grip of an evil culture upon a people but its own internal, self-induced collapse—like the self-induced collapse of the evil Roman culture in Italy. There is, as Schiller defines this a *punctum saliens* in the course of a nation’s or culture’s slide into doom, a jumping-off point at which the enactment of some available, specific sort of change of policy-direction in practice might nullify the slide toward self-destruction; up to that point, a people gripped by a decaying culture might still be rescued by their own resources. If the opportunity of the *punctum saliens* is missed, thereafter there is nothing that a people might attempt by its own independent means to prevent the remorseless unfolding of the tragedy. Tacitus’ account of Rome under the immediate successors of Augustus Caesar is a vivid portrait of a culture so degenerate it could no longer be saved by efforts from within itself.

As we indicated the feasibility of estimating the demographic characteristics of a brutish matriarchical form of society, reasonable estimates could be constructed for a maritime culture of the sort indicated. The qualitatively more favorable demography of an emergent maritime culture, relative to an inland gathering-culture, may not in itself cause the kind of moral development leading into the results demonstrated by ancient astronomical calendars, but without such qualitative advantage such a moral development were unlikely. What is also certain is that the transition from fishing at mouths of notable rivers to a maritime culture of the development indicated by the calendars subsumes certain rigorously definable technological revolutions, to the effect: A culture which has produced such calendars has overcome the challenge of those technological revolutions required to progress from a rudimentary fishing-culture.

For example: the transition from fishing by landing,

wading or near-shore swimming to the first approximations of use of navigable rafts and boats. For example: open-water navigation, especially such navigation at night-time. For example: the discovery of the sidereal year, the solar year, the progress of the equinox, and so forth.

We must distinguish the process of “original” discovery in such cultures from the “lateral” adoption of a technology by a culture which does not experience in its religious-cultural matrix the capabilities of having effected such a technological discovery.

It is sometimes unavoidable, as a matter of practice, that developing nations today be supplied with ‘turn-key’ technology. Yet, to sustain self-generating technological progress within a developing nation, the nation must develop scientific and capital-goods, producing institutions at international “state of the art” levels of development: not necessarily the full range of all “state of the art” technologies, but of some such technologies, and to the effect that those mastered are representative of the principles subsuming more or less all “state of the art” science and technology. The practical comprehension of “state of the art” science and technology must become embedded within the cultural matrix of the nation.

In the instance of the development of the maritime culture which generated the indicated early astronomical calendars, it was necessary that the indicated sort of steps of technological revolutions be embedded as experience in the cultural matrix: that an effect congruent with the hypothesis of the higher hypothesis, such a principle of discovery.

Imagine yourself a small population of some urban site of such a maritime culture. With aid of the minimum essential megalithic structures, determine the sidereal year, and the progression of the equinox. Expanding the megalithic observatory appropriately, extend the astronomy in the direction indicated by the fragmentary astronomical calendars under consideration here.

What are the characteristics of, and preconditions for the development of such calendars in this way?

Broadly, the principles of synthetic geometry are implicit in the effort. Only the circle, the sphere are self-evident existences. Existence is otherwise a transitive verb, defined in respect to circular rotation. Rotation (cycle) must be correlated with rotation, and all correlated with a single, fundamental rotation.