



How Cauchy ruined France

by Lyndon LaRouche, Jr. EIR, June 20, 1997.



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The second round of the current elections to France's national assembly ended on Sunday, June 1. As a result, for this moment, at least, the infamous Maastricht agreements, for liquidating the national sovereignties of continental Europe, are, if not doomed, at least in doubt. At the same time, without doubt, not just Europe and Japan, but the entire financial world is menaced by a new gathering global financial storm darkening the horizon. This new storm is one of a series potentially the biggest yet but probably not yet that final one which will bring the presently doomed international financial system to its inevitable early end. For those who wish to prepare for what will happen to this world during the remaining few years of this century, many lessons are to be learned from the past and current history of modern France.

To draw the necessary lessons from history, we must understand real history, *not* as history has been taught in the textbooks and classrooms. History is *not* a Jungle into which men and women are thrown. History is *not* a record of how ambitious figures succeeded or failed in their personal strivings. History is *not* a chronicle of what has been done to peoples, nations and personalities. History *is* the science of what mankind has done to itself. History *is* therefore the history of mankind's ideas, the ideas which ultimately, determine which nation is morally fit to play a leading role, and which cultures will, in the end, prove themselves either, in the extreme, morally unfit to survive, or simply inferior alternatives which the general welfare obliges us to replace.

History is the stage, upon which Othello-France was felled by the corrupting influence of a Venetian Iago, Carlo Pozzo di Borgo. It is the theater, in which a vengeance gripped, post-Napoleon Hamlet-France brought the bloody slaughters of unnecessary, successive wars upon itself. Unless we learn *that* lesson from history, disasters could overtake all of us soon, even very soon.



Figure 1. The most crucial act of 1814-1815, LaRouche writes, “was the expulsion of the leaders of France’s science, Lazare Carnot and Gaspard Monge, and their replacement by the ‘Biche and Mouche’ of Nineteenth Century French culture, the Marquis de Laplace [left] and his young, Mephistophelean protégé, Augustin Cauchy [right].”

Why was it, that, not long after 1814, Germany emerged, to replace France, as the world’s leading nation in science? Why had it been President Lincoln’s United States, later echoed by Germany, rather than France, which led the Nineteenth-Century industrial revolution? (1) The destruction of French science and culture, beginning the reign of the Restoration monarch, Louis XVIII, is the best available choice of clinical case, for understanding how the quality of culture determines the moral fitness for leadership among modern nations. It was the failure of so many, in the U.S.A., as in Europe, to learn the lessons of the moral degeneration of France, under the influence of the culturally degenerate Bourbon Restoration, which has left the door open for the onrushing economic catastrophe gripping, among other nations, the U.S.A. today.

1. On the rise and character of the strategic machine-tool-design sector, beginning with Sylvanus Thayer’s West Point, continuing under Henry Carey in the later U.S.A., spreading into post-1876 Germany, and in Germany more recently, see Anton Chaitkin, “Leibniz, Gauss Shaped U.S. Science Successes,” EIR, Feb. 9, 1996, and “The ‘Land-Bridge’: Henry Carey’s Global Development Program,” EIR, May 2, 1997; and Lothar Komp, “The Crucial Role of the ‘Mittelstand’ in the Economy of Postwar Germany,” EIR, Jan. 1, 1997, “The Era of Deindustrialization Has Now Reached Its Dead End,” EIR, Feb. 7, 1997, and Komp’s references to Freiberg, which are indispensable for understanding the Leibniz influence upon the Monge-Carnot circles, and the personal insight of Alexander von Humboldt into this influence within the work of the Ecole (unpublished manuscript). See also, Lyndon H. LaRouche, Jr., “Machine-Tool Design: The Brains of Profit,” EIR, Jan. 1, 1997, and “Return to the Machine-Tool Principle,” EIR, Feb.

That lesson must be learned, while we have still a little time to save our nation. Indeed, to save this civilization as a whole. Thus, like the Horatio of Shakespeare's Hamlet, let us reflect upon the lessons of that bloody disaster which felled a nation, France, which had been the greatest of Europe. Look at the bloodily continued spectacle, of France's lost grandeur, as Shakespeare's Horatio spoke at the bloody ending of Hamlet's Denmark-England, on the occasion of the recent accession of James I:

"... give order that these bodies
High on a stage be placed to the view;
And let me speak to the yet unknowing world
How these things came about; so shall you hear
Of carnal, bloody, and unnatural acts;
Of accidental judgments, casual slaughters;
Of deaths put on by cunning and forc'd cause;
And, in this upshot, purposes mistook
Fall'n on the inventors' heads _ . .
But let this same be presently perform'd,
Even while men's minds are wild: lest more mischance
On plots and errors happen."

(2) William Shakespeare, "Hamlet," Act V, Scene H.

From its 1461 - 1483 establishment as the first modern sovereign nation-state, under King Louis XI, until the 1814 Bourbon Restoration, under Louis XVIII, France was the leading nation of Western Europe: the largest in population, the most advanced in economy. With Venice's post-1611 ruin of Leonardo da Vinci's Italy, and the impact of the 1618- 1648 Thirty Years War on Johannes Kepler's German-speaking world, the France of Gaspard Desargues, Pierre de Fermat, Blaise Pascal, Christian Huygens, and Gottfried Leibniz, bestrode European civilization as the center of the world's scientific progress.

Beginning 1794, under the influence of Leibniz's followers among those anti-Newton scientists who joined with Gaspard Monge and A.-M. Legendre to found the Ecole Polytechnique, France not only resumed its pre-1789 position as the world's leader in science, but also emerged as the world's pioneer in establishing a form of economy driven by what is to be recognized, today, as a strategic machine-tool-design industry driven by scientific "crash programs." Thus, the pre-Vienna Congress Ecole Polytechnique, as long as it remained under the direction of Monge and Legendre, prefigured this century's U.S. Manhattan Project and Moon-Landing program. The E role continued that role during the period of Napoleon Bonaparte's rule, despite the regime's invidious enmity toward France's 1792-1794 "organizer of victory," Bonaparte's former commander, Lazare Carnot.



Figure 3. The Congress of Vienna: Europe's powerbrokers redraw the map of Europe after the fall of Napoleon. Among those pictured are the Duke of Wellington, Lord Castlereagh, Metternich, and Talleyrand. The conditionalities imposed by the Congress of Vienna, allowed the destruction of science by Laplace and Cauchy-a disaster from which France has never recovered.

Then came 1814. The defeated Corsican Emperor Napoleon retired, temporarily, to Elba, and then, in 1815, permanently, as we are told, to St. Helena, while his brothers and sisters entered the service of the British monarchy's projects, against both continental Europe and the United States of America (3) With the famous Congress of Vienna, came the "legitimist" Restoration of Louis XVIII, himself a puppet of the Holy Alliance's occupying authority, this another Corsican, Russia's Venice-directed Ambassador to France, Carlo Pozzo di Borgo. Looking back to those events of 1814-1815 today, the most crucial act taken then, at behest of the wretched Louis XVIII, was the expulsion of the leaders of France's science,

3. Jacques Cheminade, address on Napoleon Bonaparte to a seminar sponsored by the Schiller Institute, in Oberwesel, Germany on July 27, 1996 (see EIR, Oct. 18, 1996). For other references on Pozzo, and the post-1814 Bonaparte family, see also Allen and Rachel Douglas, "The Roots of the Trust" (unpublished EIR report, 1987, Chapter 4); and Judy Hodgkiss, "The Bonapanist Disease infects the United States," New Federalist, Oct. 7, 1996.

Lazare Carnot and Gaspard Monge. And their replacement by the “Biche and Mouche” of Nineteenth-Century French culture, the Marquis Laplace and his young, Mephistophelean protégé, Augustin Cauchy. (4)

The entirety of the Monge-Legendre program for educating the world’s future leading scientists and engineers, “in battalions-strength,” was ripped out of that institution by Laplace and Cauchy. Under the “limits” doctrine decreed by Cauchy, the former science of the Monge-Legendre Ecole, was transformed, thus, into the semblance of a freshly cropped eunuch (5) In place of the science which Cauchy worked to destroy, Restoration France polluted itself, and our world, with the “social” pseudo-sciences concocted by the positivists St. Simon, Madame de Stael, August Comte, and their followers: “political science,” ethnology (anthropology), psychology, sociology, and the fascistic “Lausanne School” of economics, of Leon Walras and Vilfredo Pareto.(6)

4. "Biche" and "Mouche" were the popular nicknames of a lying pair of thieving magpies from Italy's Bardi banking house, who played a leading role in the vast financial swindle which plunged mid-Fourteenth-Century Europe into decades of horror known as the "New Dark Age." Without considering here the decades-long Tweedledee-Tweedledum rivalry of Henry A. Kissinger and Zbigniew Brzezinski, few figures of modern history mimic the Fourteenth Century's Biche and Mouche more effectively, than the swindlers Laplace and Cauchy.

5. This process of feudal reactionary decrees under Prince Metternich's Holy Alliance, was not limited to France. These kinds of repressive measures against science and culture continued to radiate from Metternich and his *Geheimpolizei* apparatus over a number of years. The internal exile of the chief still-living architect of the German Liberation Wars against Napoleon, the statesman Freiherr vom und zu Stein, parallels the actions against Carnot and Monge. Most notable are Metternich's infamous Carlsbad Decrees of August-September 1819, which banned the work of Germany's greatest poet and dramatist, Friedrich Schiller. The popularized myth is, that the Restoration was a reaction against the excesses of the Jacobins and Napoleon; Metternich, echoed by British agent of influence Henry A. Kissinger, expressed contrary views on this subject. Metternich, echoed by Kissinger [A World Restored: Metternich, Castlereagh and the Problems of Peace 1812-1822 (Houghton Mifflin Co. Sentry Edition, Boston: 1954), and Chatham House address of May 10, 1982] identified the process leading into the establishment of the U.S. Federal Republic as the ultimate adversary. After all, Maximilian Robespierre was a British asset, while Danton and Marat were outrightly British agents, trained in, and directed from London, by the then head of the British Foreign Service, Jeremy Bentham.

6. Walras's mechanistic mathematical models formed the basis for the positivist Vienna school in economics, that of Ludwig von Mises, and of Oskar Morgenstern and John von Neumann. The incompetent axiomatic assumptions of all modern "systems analysis" and "information theory," are derived from the French-Austro-Hungarian positivists who relied upon the assumptions of Walras et al. The present writer has frequently referred to the 1960. *The Production of Commodities by Commodities* of Cambridge's Piero Sraffa, as typifying the fraudulent characteristic of the systems analysis imported into the Soviet Union by way of the Laxenberg, Austria-based International Institute for Applied Systems Analysis (IIASA). [For typical "Operations Research" by-products of this positivist outlook and genre, see *Activity Analysis of Production and Allocation*, Tjalling Koopmans, ed. (New York: John Wiley & Sons, 1951).] Nowhere in today's generally accepted varieties of university classroom economics textbooks and classroom, is any provision acknowledged for the, in fact, decisive role of the development of the individual person's cognitive processes, in determining the productivity of human labor, just as the pseudo-scientific "information theory" of Norbert Wiener et al., makes no allowance for the existence of actual human cognitive processes in the definition of "information." This is what attracted Italian fascists, such as the pre-Frantz Fanon Benito Mussolini, to Pareto's Walrasian positivism.

With the initial publication of Crelle's Journal, in 1826, nearly all of that scientific activity which had been the leading edge of France's science under Carnot and Monge, had either moved, like the later sponsor of Bernhard Riemann, Lejeune Dirichlet, to exile in the Germany of Alexander von Humboldt and Carl Gauss, or was in the process of doing so. (7)

So, France, which had been the scientifically most advanced and powerful of the world's economies, during the preceding two centuries, was transformed rapidly into an economic, as well as intellectual and moral backwater. Despite the noble efforts of patriots of the early Third Republic, gathered around figures such as President Sadi Carnot, historian diplomat Gabriel Hanotaux, and the Fifth Republic's President Charles de Gaulle, that nation has never fully recovered from Cauchy. To the present day, it suffers from the nearly mortal blow to its science and morality, dealt by Louis XVIII's appointment of the Marquis Laplace and Augustin Cauchy. This pair led the destruction of nearly all that had made France the world's leader in science during the preceding two hundred-odd years.(8)

Louis XVIII's July 1815 re-Restoration did not succeed in killing France's science altogether. A few great scientists did appear in France, but only as exceptions. Outstanding among the exceptions, is the great Louis Pasteur, who won his victories against the Paris positivist priesthood's "political correctness." Pasteur understood how science had been virtually destroyed in Restoration France. Pierre Beaudry's citation from Pasteur's 1883 address to France's *Academic des Sciences*, leaves no reasonable margin for doubt that Pasteur understood exactly the nature of those constipated academic asses who were his enemies.

7. Monge died in 1818, in his native city of Beaune. Carnot died in exile, in Magdeburg, Germany, in 1823. Until 1827, Alexander von Humboldt, the architect of the science and technology policy of Nineteenth-Century Germany, spent approximately half each year in Paris, working with that faction of the Ecole Polytechnique which continued the science tradition of Carnot and Monge. With the appearance of Crelle's Journal [*Journal für die reine und angewandte Mathematik*, as an intended successor, in the Freiberg tradition, to Gottfried Leibniz's *Acta Eruditorum Lipsiensium*, the transplanting of the leading contributions from the circles of Carnot and Monge to Germany was well under way. Meanwhile, beginning 1814, the influence of the Monge Ecole Polytechnique was also transferred to the U.S.A., where it became a central feature of the golden age of West Point Military Academy, under Sylvanus Thayer. It was a graduate of Thayer's West Point, Benjamin Franklin's great-grandson, Alexander Dallas Bache, who became the U.S. patriots' chief liaison to the Gottingen circles of Carl Gauss and to Alexander von Humboldt. It was Bache, who, together with economist Henry Carey, Whig leader Henry Clay, and former President and Senator John Quincy Adams, established thus the scientific foundations for President Lincoln's industrial revolution, the revolution which, for that time, made the U.S.A. the world's most advanced economy. It was these U.S. - Germany science-channels which established the basis for the great strategic machine-tool program which made the U.S. of the 1860s and 1870s the world's most advanced economy, the U.S. model used by post-1876 Germany in its rise to unmatched economic achievements on the continent of Europe.

8. In the history of France since this 1814-1827 transformation, there have been but two relatively bright periods. The first, the early period of the Third Republic, until the 1898 Fashoda incident, under the leadership of such as Adolphe Thiers, President Sadi Carnot, and Gabriel Hanotaux, following the fight of the defeated Napoleon III, when the patriotic faction in France had returned to a relatively hegemonic position, to the temporary disadvantage of the discredited, but still yapping packs of leftists, legitimists and Bonapartists. The second, the approximate decade under President Charles de Gaulle as President of the Fifth Republic, especially the period of collaboration with Germany's Konrad Adenauer. Otherwise, post-1814 French history to date, has rarely risen above the memories of dead flowers pressed between the pages of a little-read book.

The lessons to be learned

To understand the person and role of Augustin Cauchy, two leading facts about his personal character are indispensable. First, he was of low personal character, an unprincipled opportunist and compulsive plagiarist. Otherwise, in his approach to matters of science, he was a fanatical Aristotelian in the tradition of anti-Renaissance, Padua *mortalist*, Pietro Pomponazzi. (9)

It is said that Cauchy was nominally a French Jesuit. The evidence of his scientific and related work, is that he may have been, nominally, at least, as Christian as a philosophical *mortalist* might be. It is that perversity, Cauchy's fanatical, pro-feudalist misconception of both man and nature, which directs attention to the crucial issue of his role in the destruction of France's scientific tradition.

In modern French history, still today, there is a continuing, pro-feudalist tradition, inherited from London-allied, wealthy, anti-Richelieu, anti-Mazarin, anti-Colbert French Aristocratic serf-owners of the Seventeenth Century: the *Fronde*. This tradition, as expressed by Francois Quesnay's anti-science doctrine of *laissez-faire*, is the native root of Cauchy's perverse pretensions to Christianity, and the root of French Nineteenth-Century positivism. This tradition expressed its influence upon Louis XIV, whose corruption by these Venice - and London-tied *Fronde* and other circles, prompted him to adopt for himself the "Sun King" role of a Byzantine *Pontifex Maximus*, the role of pagan high priest of the pantheon of *Sol Invictus*. This feudalism-rooted form of "Gallican Church," runs from Louis XIV, through another self-avowed Pontifex Maximus, Napoleon I. (10) This heritage of Gallicanism, running through both the most socially reactionary Legitimist circles, and also French Bonapartist traditions, produced the notorious General Boulanger, who missed a revolution because he could not descend from his mistress in time to mount his horse. This same heritage is expressed during the 1890s, as the right-wing, rabidly anti-Semitic, nominally Catholic faction, in the Dreyfuss Affair, and, in the ensuing submission of Théophile Delcassé's France to an Entente Cordiale with Lord Kitchener's and King Edward VII's Britain.

This pro-feudalist tradition in France, embodies an anti-Christian conception of both individual human nature and of man's functional relationship to the universe at large. The heritage of Aristotelian mortalism, and Gallican parade of feudal paganism in clerical robes, is identical with the functional

9. Pietro Pomponazzi (1462- 1525), a leading figure of the Venice-directed, anti-Renaissance movement, which prefigured the later founding of the so-called "Enlightenment" by Paoli Sarpi and his followers. Pomponazzi is otherwise known as the teacher and friend of a key figure of the Reformation. Venice's Gasparo Contarini. later Cardinal Contarini. Pomponazzi was the central figure of the revival of the Aristotelianism of Averroes in western Europe. He was fully consistent with both the Averroes tradition and with Aristotle, in writing his skeptical 1516 *Treatise on the Immortality of the Soul*, which defined the modern form of the Aristotelian "mortalist" dogma, that the human soul either does not exist, or might be a mere epiphenomenon of the mortal flesh.

10. Jacques Cheminade, op cit.

qualities falsely attributed to the individual mind and to man's interaction with nature, in Cauchy's mathematics, as by Francois Quesnay. (11) Christian civilization, which Leibniz served, expresses its conception of the individual person as in the image of God, by means of that notion of agapé presented by Plato, as in Book II of his Republic. Plato's conception is identical with that of the Apostle Paul's celebrated I Corinthians 13. The essence of a Christian character of the individual personality, is this same quality of agapé presented by Plato: a passion for truth, and justice predicated upon truth, a passion for the good, the which will not let one free of its relentless grip. This passion, is the essence of all true science, all true human knowledge. This is what the reactionary, Aristotelian bigot, Cauchy, abhorred in Lazare Carnot; it was on this point that the great Pasteur explicitly denounced that pack of pompous, positivist scalawags who had come to dominate the paganist high priesthood of France's official science.

The leading fraud of the modern science classroom, and of popular opinion generally, is the Aristotelian and Ockhamite delusion that "science is objective," the positivist delusion, that "science is statistics," for example. On the contrary, the essence of all scientific progress, and all good teaching of science, is predominantly subjective. It is the ability of the developed individual cognitive processes, to generate, and to replicate the original generation of validatable, new discoveries of physical principle, which is the essential side of scientific work, its subjective side, the quality of cognition which sets mankind apart from the beasts. It is the success of this process of discovery of new principles, which is proven by the greatest of all scientific experiments, the increase of mankind's power over nature through such progress. This power of discovery of validatable, new scientific principles, has two distinct, but mutually interdependent facets.

On the one side, valid discoveries of principle occur in the manner depicted implicitly by Riemann's celebrated 1854

11. Francois Quesnay's work was derived largely from a project set into motion by Abbot Antonio Conti, the key Venetian controller of the network of salons built up in France and elsewhere during the minority of France's Louis XV. Thus, Quesnay was situated, as a physician in the orbit of Madame Pompadour, and of Conti's leading agent in France, Voltaire. The economics thinking of the Conti network finds its roots in the work of the Sixteenth-Century Enlightenment figure, Giovanni Botero, the founder of modern Malthusianism. The key figures behind Quesnay's economics work were chiefly Conti's leading agent, Giammaria Ortes, and a close associate of Voltaire, and collaborator of Ortes', Pierre-Louis Maupertuis, the latter once head of Frederick II's Royal Academy at Berlin. Ortes and Maupertuis committed themselves to launching a new mathematical economics, which they avowed would be modeled upon the calculus of Isaac Newton. This was the point of reference for the writings of Quesnay, and the foundation of the British school of political economy, based upon what Jeremy Bentham and his followers identified, variously, as a "felicific," or "hedonistic" calculus.

habilitation dissertation, *On the Hypotheses Which Underlie Geometry*. Since Riemann, each validated fundamental principle of physics assumes the role of an added dimension of an "n-dimensional" physical-space-time geometry, a species of geometry which eliminates and replaces all earlier notions of space-time geometry employed for physics. (12)

In each case, such a discovery in physical science, is prompted by two contrasting arrays of evidence, each of which one is obliged to believe as one's best knowledge up to that point. On the one side, there is the formal system of belief, such as a physical science, which rests upon what one has believed to be solid experimental evidence. On the other side, there is a phenomenon, in whose existence one must believe, by the same standard applicable to one's notions of physical science generally. Yet, if the latter is true, then the former must be in error, since the two beliefs could not cohabit the same universe. The juxtaposition of these two, equally authoritative, but immiscible ideas, forms a metaphor, in the same sense as strict metaphor is the essential content of Classical forms of artistic composition. Thus, the mind is confronted with the duty to discover a higher system of belief, freed from the obvious flaws which the new evidence shows to be pervading the previously established ideas about physical science in general.

The tension of this metaphor is that provocation of the creative cognitive processes of the individual mind, from which validatable discoveries of new physical principles are produced. Once the new principle is validated, the entirety of one's old belief (scientific hypothesis) must be reconstructed, to correspond to the interaction of the added new dimension with the surviving old dimensions (a new, superior hypothesis). Thus, we have a series, of the type describable as progress from a physical-space-time geometry of "n dimensions," to a superior geometry of "n+1 dimensions." Thus, fundamental scientific progress, and the technological progress which it subsumes, correspond to a Riemannian succession of hypotheses.

On the other side, the success of the cognitive processes underlying such a Riemannian series of hypotheses requires an "energizing" principle. Every person who has repeatedly experienced the process of generating, or reenacting (as students, for example) an original, validatable discovery of principle, is familiar with this "energizing" principle. Pierre Beaudry references Lazare Carnot's emphasis on the function of this quality of passion ("enthusiasm") in generating validatable scientific discoveries of principle. Beaudry concludes his report, appropriately, with Pasteur's 1882 denunciation of the positivists, a denunciation in which this principle of passion for truth, which Plato and the Apostle Paul name *agapé*, is the cause which is to be defended against the positivism of Cauchy et al.

12. *Über die Hypothesen, welche der Geometrie zu Grunde liegen*, Bernhard Riemann 's *gesammelte mathematische Werke*, H. Weber, ed. (New York: Dover Publications Reprint, 1953). pp. 272-287. Cf. Lyndon H. LaRouche, Jr., "The Essential Role of 'Time-Reversal' in Mathematical Economics," *Executive Intelligence Review*, Oct. 11, 1996.



Figure 4. Francisco Goya: "The Sleep of Reason Begets Monsters" (*Los Caprichios*. 1799).

Whenever one is confronted with a true metaphor, such as the type of experimental-scientific paradox identified above, one's ability to sustain concentration up to the point of actual breakthrough to discovery, depends upon the special kind of mental energy properly associated with *agapé*. Failure occurs, usually, because the mind seems "to fall asleep," even in the case that, moments later, the sleepy student from the classroom is fully alert – not agapically, of course, but erotically – in the playing field, outside. The student who fails, habitually, to summon *agapé* when faced with a soluble paradox of that sort, is distinguished, from the students fighting to break through to solution, by the fact that he "feels drowsy," perhaps slightly "stupid." (13)

13. Although the process of cognition is distinguishable within the domain of *Analysis Situs*, from living processes as such, cognitive processes are nonetheless supported by appropriate types of living processes. With that qualification supplied the passion of cognitive concentration does require biological energy. Using the term anti entropy in the sense implied by a Riemannian series of hypotheses of the n to $n + 1$ ordering the crucial issue of cognition is not the caloric quantity of biological energy consumed but the relative "anti-entropy" of the cognitive action so supported. With that qualification, it is sometimes biologically unavoidable, that even the greatest thinkers must sometimes rest, or enjoy a brief change of pace.

In a related case, professional musical performance, the same syndrome presents itself in such expressions as Romanticism. For example, the effort to present a fraudulent (e.g., “Romantic”) performance of a work by Beethoven, Schubert, Schumann, or Brahms. All Classical composition, especially the motivic thorough-compositional method of Wolfgang Mozart, the later Haydn compositions, Beethoven, et al., is premised on the principle of metaphor. Thus, all aspects of the performance in progress, must anticipate that subsuming notion, underlying the composition’s transitions, which is the single idea of the composition’s identity as a whole unit. The challenge of recognizing that unifying identity, presents the prospective performer with a paradox, akin, on principle, to the ontological paradox which Plato presents by means of his Parmenides. The inability of a performer to summon the agapic passion needed to evoke recognition of that unifying conception, frequently tempts that performer to descend, like Mozart’s self-doomed *Don Giovanni*, into such perversions in performance as the eroticism of an arbitrary coloration, a “Romantic interpretation.”

Focus upon Plato’s notion of agapé. The passion which accounts for the ability of some persons to effect Riemannian breakthroughs, in solving paradoxes of the indicated type, is the same as that described as passion for justice, by Plato’s Socrates in the *Republic*, as the Apostle Paul invokes the same notion of agapé in I Corinthians 13. Look at this matter, first, from the vantage-point of physical science and technological progress, and, thereafter, for its bearing upon the moral quality of a society’s culture.

The first lesson to be learned from Cauchy’s ruin of France, is the issue of the special, anti-Aristotelian form of passion, the devotion to truth, even in defiance of generally accepted belief, the passion known as agapé, which is associated with the Riemannian form of discovery of principle. The second lesson, which we summarize next, is another principle central to Riemannian series: the Leibnizian principle of discontinuity. The third lesson, next, is the proof of the subjectivity of all scientific knowledge. The fourth, and concluding lesson, is the indispensable role of an anti-Aristotelian view of knowledge, in fostering development of the moral character of the future citizen, scientist, artist, and statesman.

The principle of discontinuity

As stressed by Gottfried Leibniz the central issue in the development of the kind of calculus specified by Johannes Kepler, is the problem of “tangency,” the determination of the orbital pathway of an action from inside the orbit itself. The Classical prototype of a solution for this is the manner in which a leading figure of Plato’s Academy of Athens, Eratosthenes, estimated the length of the Earth’s meridian, during the latter decades of the Third Century B.C. There is a clear continuity in method, traced through this and related work of Eratosthenes and Archimedes, through Nicolaus of Cusa’s first proof of the existence of transcendental magnitudes, through Kepler’s work, through Leibniz’s first development of such a calculus, and through Gauss’s applications of biquadratic residues for derivation of general notions of curved surfaces, into the first establishment of a true non-Euclidean physical-space-time geometry, by Bernhard Riemann.

As this bears upon the fraud of the Euler-Lagrange-Cauchy hoax, known as the “limit theorem,” the kernel of the modern battle between the Platonists, such as Cusa, Kepler, Leibniz, Carnot, Gauss, and Riemann, against the Aristotelian mystifiers, such as Cauchy, is the latter’s rejection of the issue of method already implicit in Eratosthenes’ estimate for the meridian, and Cusa’s demonstration that the increase of the number of sides of a regular polygon never converges upon the actuality of the circle within which such a polygon might be inscribed. (14) Riemann’s referenced revolution in geometry makes the issues fully transparent.

In Eratosthenes’ indicated experiment, »the experiment was designed to measure the angle of the noonday shadow, cast by the pin on the interior hemisphere of a sundial. The design of the experiment was structured to the effect, that it was required to determine whether or not the surface of the Earth was implicitly underlain, throughout, by a plane. The evidence compels the modern student reliving that experiment, to conclude that a third dimension, everywhere normal to the Earth’s mean surface, must be introduced. The relatively small, ordered variability of the angle of the shadow reveals such an added dimensionality. Once that were done, the ordering of the successive angles defines an underlying curved surface, rather than a plane one. In other words, what might have been imagined to be simple, perfectly continuous linear extension in two senses of direction, turned out to be very discontinuous, on account of the presence of an efficient third dimension at any smallest interval of linear extension of the two initially assumed dimensions.

All discoveries of validatable principle in physical science, have a similar relationship to an experimental stand point. Each time we validate a new principle, we add a required dimension to the physical-space-time domain in which physical events must be situated. Each such addition represents a manifest break in the continuity of what might be assumed to be the perfect extension of all preestablished dimensions. Hence, the importance of respect for the efficient existence lurking behind infinitesimals; these are not to be brushed aside with a wave of the Aristotelian hand.

So, in mathematics, all issues of principle have an experimental-physical solution, which is elementary, if rarely simple. The presumption of “linearity in the very small,” upon which the Newtonian standpoint of Euler, Lagrange, Laplace, Cauchy, Grassmann, Kelvin, Clausius, Helmholtz, Maxwell, Hennis, Lindemann, et al. depends, is exposed in an elementary way, to have been a sophistry, a hoax, from the outset.

14. Lyndon H. LaRouche, Jr., “*On The Subject of Metaphor*,” Fidelio, Fall 1992. The argument of Felix Klein, et al., that the discovery of the transcendental quality of pi, was obtained through the successive work of Euler, Lambert, Hermite, and Lindemann, is unabashed sophistry. The fact that “infinite division” could never produce a polygon congruent with the circle, establishes beyond doubt the fact that the discovery of the existence of transcendental qualities of “infinitesimals” is due to Nicolaus of Cusa (1440); whereas, Euler’s argument, on which his successors relied hereditarily, was pure tautological fraud, deriving a theorem from a method which had that theorem embedded within it, axiomatically.

Compare this to the most elementary issue in economics, the elementary sophistry, and delusion, underlying each and all varieties of usually taught classroom and textbook economics today. Any original discovery of a validated new principle of science, or related mental action associated with increase of the productive powers of labor, is generated as a thought. What, pray, is the size, mass, and so forth, of that thought? Yet, precisely such thoughts are the sole source of mankind's increased dominion in the universe, the source of the increase of mankind's potential relative population density, from a maximum of several millions living individuals, for the more primitive cultures, to more than five billions presently. The sole source of an accompanying improvement in demographic characteristics of households, until a change to a "post-industrial" utopian policy, about thirty years ago, has the same source, in infinitesimals.

In the case of discoveries of physical principle, or related expositions of a principle of strategic-machine-tool design, each thought associated with the discovery, is prompted by a paradox of the type we described earlier here. That paradox, which is of the same type as the ontological paradox embedded in Plato's *Parmenides*, leads toward a solution, a discovery of principle. Each such paradox is of the type represented by the Eratosthenes experiment we cited above. The paradox itself, to the extent it meets the requirements we specified earlier here, is, itself, a discontinuity. The discovery which resolves this paradox, is an anti-entropic discontinuity, a mathematical-physical singularity.

"Please, Mr. Butcher, weigh me out ten grams of love, and spice it with six milligrams of genius."

The principle of knowledge

Once we have conceded the evidence, that the increase of the potential relative population-density of the human species, is the expression of a series of validatable discoveries of scientific and artistic principle, cumulatively of the type of a Riemannian series, we must restrict the use of the term "knowledge," to refer to the process defined by the individual mind's reenactment of discovery of each of the "dimensions" cumulatively embedded in that Riemannian portrait of transmission of culture.

From this vantage-point, the acquired wisdom of relying upon the experimental (Platonic), rather than hesychastic (Aristotelian) method, obliges us to generalize the notion of such a Riemannian series in the terms of a "great experiment," an experiment upon which the rational notion of knowledge in general depends. The crucial fact is, that the increase of the universe's submission to the social-reproductive power represented by the work of a typical individual is the only available source, a "great experimental" source, from which the proper meaning of the term "knowledge" might be adduced. The design of our "great experiment" focuses upon the cognitive process, by means of which validated discoveries of principle are originally generated, those generations replicated, and assimilated for practice. The subject, therefore, is the "correlation" between the increased cardinality of the Riemannian series so determined, and the manifestly increased submissiveness of the universe to that increase of cardinality. The experimental design compares change, as represented by Riemannian cognitive anti-entropy, with change, as represented by the anti-entropy of increased social-reproductive powers of labor.

The outcome of this "great experiment," each time it is repeated, is that the name of "laws of the universe." References those discernible features of the process of cognition, by means of which anti-entropic changes in the Riemannian series of knowledge result in mankind's increased power to command

obedience from the universe. No other definition of "laws of the universe" is rational; any different definition, is merely arbitrary assertion, lacking proof.

This epistemological view of the matter underlies the rational definition of the term "science." This also defines a proper view of the notion of culture. That is to say, that cultures which generate increase of mankind's power in the universe are moral, whereas those which inhibit such progress are intrinsically immoral. Those which tend to reverse such progress are cultures which are rightly recognized as lacking the "moral fitness to survive." Cultures which are deemed "conservative," on account of their resistance to changes essential to progress of the human condition. are cultures waiting early replacement, as soon as something suited to this use is available.

Thus, often, the essential feature of a culture may be more the way in which it is changing, than the absolute level of development it has achieved. Thus, less developed economies, which are committed efficiently to development, are intrinsically far more morally suited to prevail, than relatively more developed economies which are acting as a brake to general progress in the condition of mankind as a whole. The most desirable case, of course, is to have the most developed economies dedicated to fostering rapid changes for the better in the condition of mankind as a whole, especially those economies which are relatively less developed: "Good Samaritan" economies, one might say.

The principle of knowledge defines personal morality in the same way. As the Riemannian series defines an efficient passion for truthfulness in the developmental characteristics of cultures, so the same principle of truthfulness defines personal morality, as the Apostle Paul addresses the same issue, with the same result, in I *Corinthians 13*, or Socrates in Book II of Plato's *Republic*. A society is moral, which not only educates its young, but which educates them to acquire knowledge from the past, by reenacting discoveries of principle, rather than merely learning approved glosses on those principles. (15) A society is moral, which organizes its productive, and other general social practice to employ the same principle of knowledge there, as in education. A culture which does not foster discovery through that sort of education and general social practice, is morally inferior to one which does.

This cultivation of the practical development of knowledge cannot be limited to matters of science and technology. It must include similar education in those Classical works and forms of art which we compose according to the same Riemannian principle of knowledge: according to the principle of metaphor. In Classical art, as distinct from, for example, the immorality intrinsic to Romanticism and modernism, the subjects are chiefly two. Foremost, the creative principle of metaphor itself, which is the same quality represented by validated discoveries of principles of nature. In an, although the subject is always metaphor itself, the metaphor is expressed in terms of truth-seeking respecting the way in which human relations are to be situated, according to the nature of man (i.e., "in the image of God"), and mankind's dominion over nature.

15. Friedrich Schiller's word of contempt for those students who merely learn approved glosses, rather than reenacting the discovery of conceptions is *Brotgelehrte*. e. g.. people who sing for their supper, not for the music.

Thus, Wilhelm von Humboldt, and his mentor, Friedrich Schiller, defined the general purpose of such a Classical humanist form of combined scientific and Classical-artistic education, as that of producing a graduate of strengthened moral character. It is when persons locate their knowledge, and their sense of individual human identity, in respect to the fruitfulness of those individual powers of creative cognition by which man is defined as "made in the image of God," that the moral character is developed. Whereas, the poor fellows who merely learn to do as their parents and other forebears did, according to traditional precepts, are the morally hollow creatures against whose immoral condition the Apostle Paul warns in I Corinthians 13. (16)

The neo-feudalist ideology of Quesnay, like his kindred reactionary Cauchy, is not merely alien to such morality; such creatures hate it, and seek to eradicate it. These neo-feudalists, like those degenerates, the followers of John Locke, who formed the slave-owning class of the short-lived Confederate States of America, see "excessive" education of the slave, or other person of low social rank, as a cause for the downtrodden to become discontented with their menial condition, and to seek escape from the degraded life to which oligarchical rule prefers to condemn ninety-five percent, or more, of the population as a whole.

Such ideologues wish each helot, hod-carrier, serf, and bureaucrat, to do his assigned duty, and, to that end, the oligarchs, like wagoneers, are wont to install blinders on the poor beasts who pull their carts, and tote their hods. They encourage the oppressed to remain ignorant, and take pride in the "culture" represented by those poor pleasures and bad habits which match their servile condition. For the edification of the downtrodden, the oligarchs recommend popular ignorance and bad taste to the downtrodden, as "your traditional culture." Unquestioning obedience to the monotony of such custom, is the preferred order in which the barbarian and feudal oligarchs, and their game-keepers, the cultural relativists, encourage those bred to live as Yahoos. (17)

Such reactionary forms of society, are not merely disgusting. There is no possible, fixed technological condition, in which humanity as a whole could continue to exist. The choices are anti-entropy or doom; cultures which do not progress, degenerate. and, in that way, come to display the symptoms of a species, such as the giant panda, which has lost its fitness to survive. As the Celts say, there is a "fey" look about it. Like poisonous weeds, such degenerate culture must be culled from our garden. If we do not do that willingly, we shall suffer the natural punishment for failing to do so.

So, the cult of positivism, introduced through instruments such as Cauchy, not only removed the most vital organ, cognition, from the science-culture of France. Like the disgusting habits of cultural pessimism which later gripped Europe and the American "flappers," following useless, bloody World War I, the war-weary cynicism which overtook the French people after a quarter-Century of Robespierre, Barras, and Napoleon Bonaparte, fostered toleration for the return to power of reactionary neo-feudalism.

16. "...and have not charity [agapè], I am become as sounding brass, or a tinkling cymbal ... and have not charity, I am nothing."

17. Yahoo: n. an illiterate creature of low, servile habits (Jonathan Swift, *Gulliver's Travels*); v., the characteristic mating-call of a member of the Confederacy species.

So, as the conditions of the Versailles occupation, compounded by the 1931 regimes of Ramsay MacDonald in London and Heinrich Brüning in Berlin, made a fascist victory for Adolf Hitler possible in Germany; so, the conditionalities imposed by the Congress of Vienna, allowed the destruction of science by Louis XVIII's Laplace and Cauchy. With that concession to oligarchical reaction, France polluted its mind and morals, to the present day, with the neo-Cartesian, positivist outlook.

That is the object-lesson to be adduced from the case of Cauchy. The object is: What other nations, cultures, today, are committing the same kind of error which France's toleration of Cauchy prefigures? Our own, perhaps? To conclude this argument, look at the present population of the U.S.A. (and some other nations, too) from the vantage-point of the present writer's expertise as an extraordinarily successful economic forecaster.

On a personal note

By the close of 1952, the present writer had completed his initial set of original scientific discoveries, in the field of physical economy. While that study had been provoked, in 1948, by a reaction against the fraud of Professor Norbert Wiener's construction of so-called "information theory," the larger context for this writer's exertion was the sense that the post-war economic policy of the administration of President Harry Truman had betrayed President Roosevelt, and the U.S.A. itself, plunging us into an unnecessary, 1946-1948 return of Depression-like conditions, instead of retooling our magnificent war-industry for what Roosevelt had intended should become a post-war "American Century" of freedom and economic justice for all peoples of the world. By 1952, the initial discoveries, which the writer had just then completed, afforded him an insight into the underlying axioms of those Truman follies, and a sense of the danger to the republic, should that folly not be corrected.

It was about that time, 1952-1954, that the transition to the Eisenhower administration-sometimes called the "Eisenhower" administration-unfolded. The take-down of the U.S. economy at the close of active warfare in Korea, was an embittering echo of the Truman take-down at the close of World War II. At first, the writer's impulse was, that the lessons of war-economy revival from the 1930s Depression, must be applied to achieve the sustained growth of peacetime economy.

By 1956, he had ceased to believe that that happy change in national policy-orientation could be expected to occur in any gradual way. A study of his, in progress during that year, showed him that the U.S. was hovering near the brink of a deep economic recession, to be expected during early 1957. The arrival of that recession on schedule, during the first sixty days of 1957, not only confirmed his forecast, but indicated that the problems of the U.S. economy were axiomatic to the existing structure of the system.

During 1957- 1958, it was apparent, that the recession in progress was temporary. It was a deep recession, but no depression in the customary use of the latter term. One should shift focus from the immediate situation, to the longer-term perspective, a series of ebbs and flows, leading toward something

extraordinarily nasty down the road, unless radical axiomatic changes intervened to prevent that something. So, he continued his work.

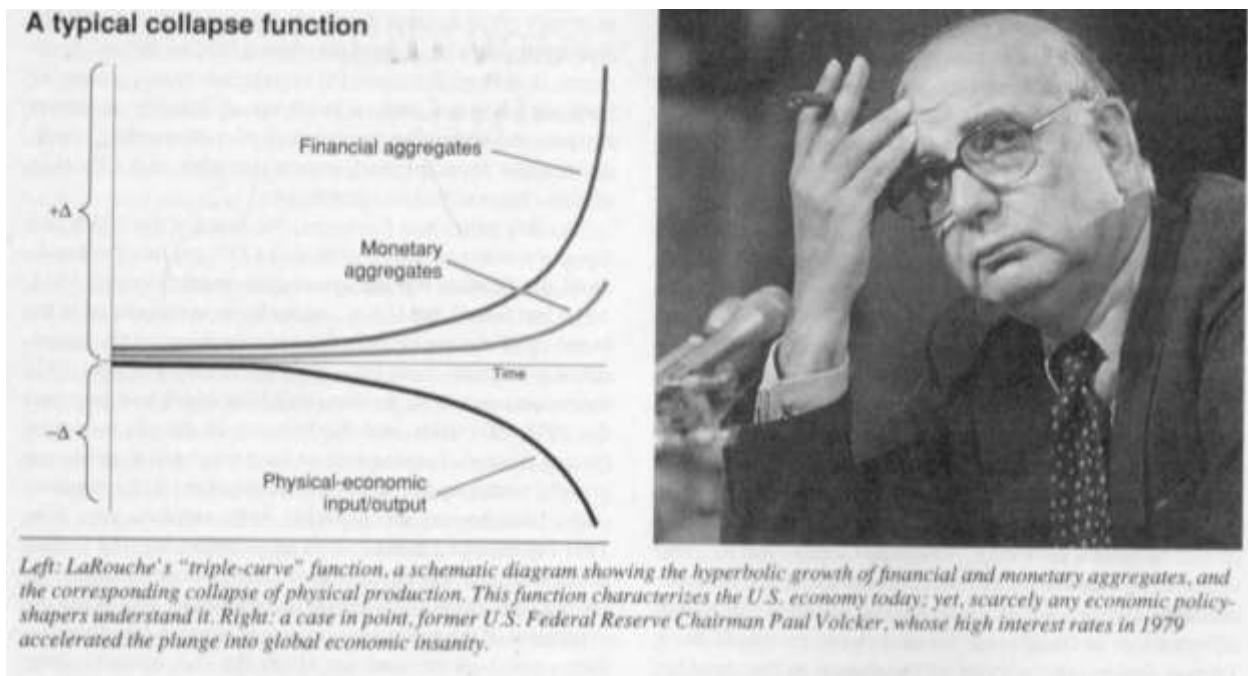
By the close of 1959, he had prepared his first long-range forecast, focused upon the second half of the 1960s. The axiomatic trends underlying U.S. policy-shaping during the 1946-1959 interval, showed that we must expect a series of monetary crisis to erupt during the second half of the 1960s, leading toward a breakup of the present Bretton Woods agreements. It showed that, were the same trends in policy-shaping continued beyond such a break-up of existing monetary agreements, there was the prospect of a devastating breakdown-crisis down the road, somewhere after such a breakup of those Bretton Woods agreements.

As this writer had forecast at the close of the 1950s, the monetary crises of 1967, 1968, and 1970, led into the breakup of the Bretton Woods agreements, in mid-August 1971. As he had feared, the U.S.A., and other powers reacted to the break-up of the old Bretton Woods agreements with fascist echoing austerity measures, applying to the new, post-1971 economic conditions, the same mind-set which had governed the 1946-1971 slide into the breakup of the old monetary system. Instead of profits derived from net physical-economic growth, which had been characteristic of the U.S. economy under Eisenhower, and Kennedy more emphatically, from 1971 on, the trend in profit-making practices was the looting of built-up, past capital improvements in basic economic infrastructure, in manufacturing, in agriculture, and in the development of the productive powers of labor. A trend converging upon 2-3% nominal growth in the U.S. economy, was sustained by a net shrinkage of real national productive output, per-capita of labor-force, by more than 2% each and every year.

The globally ruinous effects of the post-August 1971 "floating exchange-rate monetary system," were combined with the London petroleum-marketing cartel's mid- 1970s oil-price hoax. This was followed by the lunacy of the 1979 introduction of the so-called "Volcker measures," (18) the 1982 Gam-St Germain madness, the "Junk Bond" craze of the 1980s, the mid-1980s lunacy of Gramm-Rudman, the "Plaza Accords" swindle, and the "derivatives bubble" of the 1990s.

Over the course of the 1970s and 1980s, through about two dozen, half-hour nationwide television broadcasts, and many millions of copies of relevant printed books, periodicals, and pamphlets circulated, the writer's economic forecasts have been superior to any competing materials in circulation by an known governmental or notable private agency. Indeed, in the concluding, October, nationwide TV address of the 1988 campaign, he forecast the immediate, economically

18. The original name for these measures was "controlled disintegration of the economy." That policy had been designed, by that name, for the Carter Administration by a 1975-1976 New York Council on Foreign Relations project-team, headed by Secretary-of-State-to-be Cyrus Vance, National-Security-Advisor-to-be Zbigniew Brzezinski. et al. During a Spring 1979 public address in England, where he was campaigning for his subsequent, October, Caner appointment as chairman of the Federal Reserve System, Volcker used that precise formulation, "controlled disintegration of the economy." as a policy he would support. Later, the same policy, renamed "shock therapy," was used to loot Poland, and then to loot the region of the former Soviet Union down to the ground, and perhaps below.



driven breakup of the Soviet bloc, and made several other remarks which seemed prophetic to many who remembered that broadcast a year or so later.

During 1992 and 1996 campaigns, nationwide TV broadcasts of his campaigns supplied accurate forecasts of the trends which have been in progress since.

Moreover, not only were the writer's forecasts the most accurate available, but they were never of the "tea-leaf prediction" quality of typical Wall Street forecasters; every forecast was premised on a published analytical argument, and thus readily susceptible to verification by any competent agency. Thus, if our society were a rational one, then, on the basis of such evidence, the writer's views would have determined the hegemonic economic opinion in the U.S. government, and other relevant places, long before the present day. Everyone who proposed a contrary view of the economic process has been shown to be wrong. Any professed economist, or economic policy-shaper, who does not grasp this writer's exposition of a "triple-curve" function (see Figure 1), as key to the state of the world economy today lacks the most elementary degree of competence respecting any leading issues of the world today. The manifest, persistent irrationality of the relevant U.S. institutions, including mass media, on this account, expresses two leading influences. First, pure and simple wishful thinking; most people do not wish to believe that a deep depression-let alone something much worse than that-is possible. Their "scientific" opinion on this subject is usually of the nature of the assumption, that "they," who are so big, so powerful, so all-knowing, "would never let it happen." "You will see"; it is often said. "they are going to come up with something." The second irrational premise, bears more directly on Cauchy's perversion of France's science. Both the putative economics and finance professionals, and generally accepted popular opinion "about how economy works," supports the delusion, that increasing the number of incidents of paid employment, or the simple financial turnover daily, means economic growth, even if the real income and output per-capita of labor-force has been collapsing, for more than a quarter-century, at a rate always greater than two percent per year. The commonly taught varieties of classroom and textbook economics lead to expressed opinions of approximately the same nature.

That defective. but prevailing sort of textbook and classroom economics, is premised. Axiomatically, upon precisely the same fallacies which Cauchy introduced to destroy France's science. Not only that, but U.S. private and governmental policy-shaping. is dominated by the influence of radical positivism in the sundry realms of so-called "social sciences." and in academic programs generally. This latter influence is premised. Axiomatically, upon the same false presumptions underlying the varieties of generally taught textbook and classroom economics.

The rest which might be said on this connection, you should try to work through for yourself. The paradox is stated: if you work out the solution for yourself, you will not only have the answer, you will know the answer, as any truly responsible citizen of our republic should.

EIR, June 20, 1997