

EIR Feature

Brazil's debt crisis in the world's financial crash

by Lyndon H. LaRouche, Jr.

Lyndon H. LaRouche, Jr. issued the following analysis, on Oct. 26, under the title, "The Strategic Significance of Brazil's Debt-Crisis under the Present World Financial Crash," in his capacity as honorary co-chairman of the republican philosophical association, the International Caucus of Labor Committees.

Radical shifts in U.S. policy during 1982 opened the door for a massive Soviet strategic penetration of Central and South America. One key break was the Reagan administration's handling of the Malvinas War. Most decisive was the Reagan administration's rejecting the option for dealing with the debt crisis which I detailed in my August 1982 *Operation Juárez*. Instead of the *Operation Juárez* solution, in October of 1982, the administration backed the Boston and New York financial speculators' plans for looting Central and South America, launching the international financial bubble which has now burst, 60 months later.

The Soviets have been increasingly successful in exploiting the opportunities created by those two shifts in U.S. policy. In the case of Peru and Colombia, the Soviets are presently seeking to push the establishment of short-lived military regimes, as a means for building up mass political and logistical support for the growing, Soviet-directed guerrilla and terrorist forces in those nations. Moscow has moved into a strategic position in the economy of Argentina. Recently, Moscow has moved into Brazil, seeking to grab up control of that nation's strategic minerals production, while also preparing the way for possible civil war and other developments in Moscow's geopolitical interest.

Now, with the world gripped by the opening stage of the biggest worldwide financial crash in history, the nations of Central and South America are faced with a new ratchet of "IMF conditionalities"-pivoted austerity and foreign looting, at the same time that the present policies of the OECD nations and IMF are about to be obliterated in the next major wave of the global financial crash.

The governments of these developing nations are placed so in the following sort of paradoxical situation. On the one side, common sense says, "Why should we enter into agreements based on current monetary policies which are about to



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Boston, Oct. 20, 1987, the day after the U.S. stock market fell more than 500 points. Anxious citizens line up to watch a moving sign of stock market quotations.

be overthrown by the present financial crisis?" On the other side, common sense says, "At this moment, the Reagan administration is so hysterical about defending the illusion of a recovery which never occurred, that, for the next weeks, the banker-controlled Reagan administration will be more brutal than ever before in demanding savage austerity from nations it has already looted down to the bone over the past five years."

The natural inclination of most of the governments caught in this vise, is to ask if there is some way to pretend to be willing to submit to more foreign looting, without actually doing so. "Why not make token concessions, to appear to go along with the demands long enough for these inhuman IMF policies to be obliterated by the financial crash?"

These questions of monetary and economic policy, can not be answered in the constricted terms of reference of monetary policies as such. Issues of monetary and economic policy must be examined in a larger framework: how choices made in these areas of policy now, bear upon the broadest and most profound aspects of strategic questions.

The nations of the continent know that were Western civilization in general to collapse, their own nations would each be doomed. Yet, at the same time, they think to themselves, "We have the immediate particular interests of our nation to consider. We are much too small and poor to imagine that we could do anything to change the direction of things on so broad a scale as civilization as a whole." This is the old question: How is it possible that we might simultaneously deal with our own immediate affairs, the microcosm, and the

macrocosm of developments on the scale of civilization at large?

Complex as that expression of the ancient microcosm-macrocosm paradox might first appear to be, the solution to this riddle can be seen rather clearly, if we arrange the facts in the proper order.

We begin with the strategic question in the large, and proceed from that standpoint to the issues immediately facing each of these nations.

The East-West strategic crisis

A posteriori, what we term "Western civilization" appears to be a mixture of conflicting cultural heritages and tendencies, some of these apparently representing mutually irreconcilable philosophies. Yet, if we take the rise of Western civilization since the classical Athens of Solon, and, most emphatically, since the writings of St. Augustine, a meaningful definition of "Western civilization" emerges clearly.

What we ought to point toward as the essence of *Western civilization*, is that current which has been directly responsible for the rise of Western European culture as the most powerful culture on the face of this planet, the culture which raised the moral and material potential of the individual person to the highest level ever known.

An economist or physicist might say, that to see the superiority of this specific cultural force within our civilization, it is convenient to imagine ourselves in a debate with those who call themselves "anthropologists" or "ethnologists," and insist that the earliest form of society was what

they label “hunting and gathering society”: a form of society below the level of the simplest sort of production.

The science of physical economy permits us to estimate the size of such a society’s population. Approximately 10 square kilometers of land-area, on the average, would be required to sustain the life of an average human individual. It would be a very wretched and precarious mode of existence, with life-expectancies averaging well below 20 years of age. This places an upper limit upon the total human population of this planet under such conditions: approximately 10 million individuals.

Today, more than 5 billion individuals exist. Despite the considerable poverty among that population as a whole, with existing technologies we could sustain a population larger than the present size, at an average life-expectancy and standard of living comparable to or better than that prevailing in the United States at the beginning of the 1970s, the high-water mark of real consumption standards so far. We have more or less immediately available to us, the greatest rate of technological progress in the existence of mankind.

So, the potential human population of our planet today is about three orders of magnitude (a thousandfold) greater than for a “hunting and gathering society.” If we measure the energy content of the production of a 1970 U.S. per capita market-basket, this amounts to an improvement of several orders of magnitude more. It is fair to say, as a rule of thumb, technological progress has raised the potential of humanity by approximately one million times above the level of “hunting and gathering society.”

The central feature of this advancement, is what we call today “scientific and technological progress.” Through the development and application of the creative powers of the individual human mind, we are able to discover laws of the physical universe less imperfectly. We use that creative improvement in our knowledge to guide us in making changes for the better in our daily habits of productive and other practice.

No lower form of life can do this. From the standpoint of the science of physical economy, this potential for scientific and technological progress is what distinguishes the human species absolutely from the beasts. This shows man to be a qualitatively superior species, peculiarly, uniquely suited to exert dominion over nature and all creatures within it. Technological progress is indispensable for the successful continuation of human existence, under conditions of population growth and depletion of natural resources.

This compels science to look more closely at the creative mental powers of individuals. We wish to know exactly what occurs in the mind, while a valid creative discovery is being developed, and how to foster the development of such mental powers. We wish to know how to foster the increased role of such powers in the work of society; we wish to know how we might estimate the rates of increase of productivity caused by advances in technology.

The obvious place to turn first, to conduct such studies, is example of some valid fundamental discoveries in physical science. We must identify the difference between the way physical science defines laws of the universe before such a discovery, and the new way those laws are defined after such a valid discovery.

This comparison is readily made, especially if we use the kind of mathematics associated with the complex domain of Karl Gauss and Bernhard Riemann. We can state the way scientific opinion defines the laws of physics before and after the discovery, describing both cases in terms of this choice of mathematics. We then examine closely the differences between the two sets of formulations.

From the standpoint of deductive logic, we observe that the essential difference has the form of a change in the axioms of the geometry. Our next task is constructing a kind of mathematical function which makes the change from one set of formulations to the new ones an intelligible one in the language of physics. This formulation will belong to a very special class of what we call “nonlinear” functions.

We then compare creative discoveries in physical science with creative discoveries in such artistic media as classical musical polyphony, the classical painting, sculpture, and architecture we associate with the tradition of Leonardo da Vinci, and so on. We are able to show that both classes of creative discovery, scientific and artistic, are exactly the same form of mental activity.

We are also able to show, psychologically, that the production of scientific and artistic discoveries of this sort is associated with a specific sort of emotion known in the classical Greek as *agapē*, the opposite to *eros*. This is the emotion we associate with “tears of joy,” the joy of witnessing this sort of pleasure in a child who has accomplished what is, for that child, an original, problem-solving or kindred discovery. We recognize this as the emotion evoked by a sense of beauty of a work of classical art. It is the emotion of love of God, of love of mankind, and the emotional state of a mind engaged in valid creative scientific discovery.

It is for this reason, that scientists are sometimes correct in identifying the emotion of creative moments as akin to a “religious feeling,” or that one associates the same sort of “religious feeling”—*agapē*—with the great musical masterworks of a Bach, Mozart, or Beethoven.

From this standpoint, we are able to understand better how and why the anti-Roman principles of statecraft elaborated by St. Augustine take us beyond the best contributions of classical Athens, to establish a form of society and state so ordered as to promote this kind of creativity. It is this which evokes tears of joy during the singing of the Latin Creed, especially as the *Filioque* is uttered. This is the joy of St. Paul’s sermon on faith, hope, and *agapē*.

Thus, the far greater potential of our culture for promoting scientific and technological progress, is more readily identified. This is the genius of Western civilization; it is that

we must defend in Western civilization. Strategic thinking properly begins, by defining that to which this genius of Western civilization is most directly opposed, and the which opposes it maliciously.

The typical adversary is the degraded conception of God and of man associated with ancient Mesopotamia, with the ancient Canaanites, with those Greeks who saw the mythical gods of Olympos as the model for the ordering of society, and with those Roman empires which based their ordering of society upon the Mesopotamian, Phoenician, and Olympian models.

In the history of medieval and modern Europe, this has been the perpetual East-West conflict, up through the present time. Western Europe's missionaries spread Western Christianity into the Ukraine and up to the borders of Muscovy generally. About nine centuries ago, Muscovy was established for the specific purpose of serving as a bastion and point of counteroffensive against the influence of these missionaries.

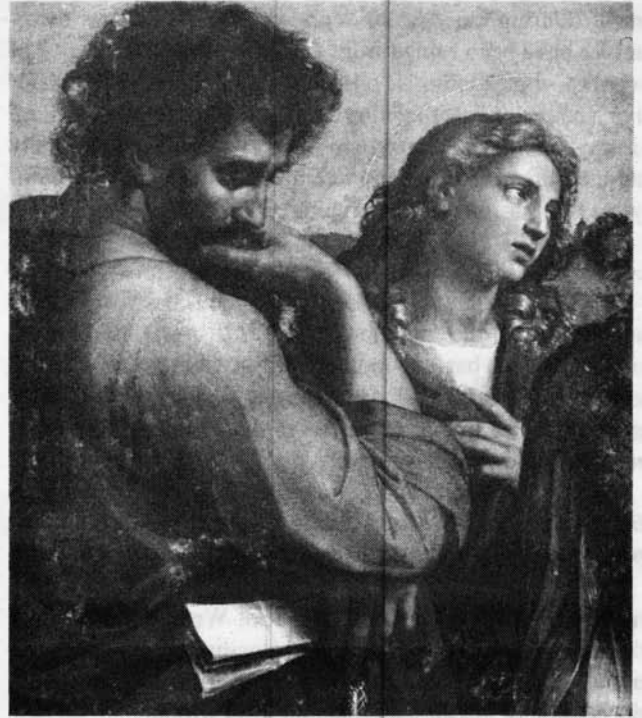
Western Europe made important cultural inroads into Russia under Peter the Great, and under Czar Alexander II during the last century. Those forces inside Russia's aristocracy and "Old Believer" cults who represented the tradition of hatred against Western civilization, unleashed the Revolutions of 1917, which destroyed the Westernizing state established by Peter the Great, and which brought the old paganist cultural currents of Muscovy to dictatorial power.

So, Moscow today is the principal armed adversary among all the forces dedicated to the extermination of Western civilization. Every other aspect of that conflict but the one we have just summarized, is secondary to the principal issue: two mutually exclusive conceptions of God and the individual person.

Today, humanity as a whole is suffering many deadly afflictions. One of these, the AIDS pandemic, has the potential for rendering the human species extinct. Others, such as deepening material wretchedness, the general spread of famine and disease, and the upsurge of various forms of mass, homicidal irrationalisms, threaten to plunge humanity into some deep and prolonged dark age.

Assume that we might come under Moscow's global domination, either by default, or by submission for sake of avoiding warfare. What would the condition of humanity become under Russian domination? Would mankind be mustered to undertake those mobilizations of scientific research and multi-trillion-dollar programs of care and economic development indispensable to save mankind from the doom of the AIDS pandemic? Would the nations of Europe, the Americas, Asia, and Africa, be mobilized to crush the forces of homicidal irrationalism, and to launch the vigorous scientific and technological progress in economy needed to prevent the slide into a new dark age?

That is the essence of the strategic issue; that is the macrocosm.



St. Paul and St. John the Evangelist, from a painting by Raphael of c. 1512. The concept of "agapē," developed by St. Paul in his famous sermon, is the creative emotion associated with scientific and artistic discovery, whose fostering is the key to Western statecraft.

Erosion within

On the surface, it is curious that Moscow could be the serious threat to civilization it has become today. The OECD nations represent approximately twice the population of the Russian empire. The labor force of the OECD nations has demonstrated potential productivities per capita approximately twice that of the labor force of the Russian empire, and this chiefly because of the indicated superiority of the culture of Western civilization.

The population of Ibero-America, now approximately 350 million, has the same cultural matrix as Western European culture. This signifies that that population has the potential rates of growth of productivity of Western Europe and the United States. The population of non-communist Asia is massive, and parts of this, such as India, have great productive potential. There is Africa. Together with the OECD nations, our potential wealth is many times that we presently possess. Also, the traditional allies and friends of the OECD nations represent most of the land-mass and ocean choke-points of the planet.

How could Moscow have become so great a strategic threat? The answer is, essentially, we have rotted ourselves from within. Through revival of neo-colonialist policies of rentier-finance during the postwar period, we have denied the developing nations the full right to economic develop-

ment. During the past 20 years, the OECD nations themselves have been ruined from within, under the guidance of a policy of promoting a "post-industrial" sort of utopianism. For about a quarter-century, much of the generation born during the immediate postwar period was crippled culturally through the promotion and toleration of the synthetic, dionysiac rock-drug-sex counterculture.

During the past 16 years, since the U.S. monetary crisis of August 1971, the evolution of what has been called a "floating exchange rate" monetary system, has fostered the acceleration of the "post-industrial" drift. Agriculture, manufacturing, and basic economic infrastructure are now in ruin among all OECD nations excepting Japan; the pre-1967 growth trends among some developing nations have been reversed, sometimes massively.

It is this material and moral erosion from within, which has so weakened Western civilization that the Russian imperial threat has become an immediately credible one.

Although the Soviet Union has developed an expanding military capability greater than that of Western Europe and the United States combined, the principal strategic weapon used by Moscow is cultural warfare intended to accelerate the erosion of Western civilization from within.

It is exemplary that Soviet subversion in Central and South America is guided by Sergei Mikoyan's superiors in the Soviet Oriental Institute. In part, this reflects the heritage of N.M. Roy's activities in Asia and the Americas before and after the Bolshevik insurgency of 1917. Essentially, it reflects the commonality of method, of Soviet subversion in Asia and in Ibero-America: the emphasis on particularist insurgencies and strange religious cults, as well as drug-traffickers and terrorists, as the principal Soviet assets of destruction on the ground.

The erosion of Western civilization by such degrading influences, echoes the potential for Nazi recruiting in 1920s Weimar Germany. The collapse of the commitment to scientific and technological progress as the driving force of economic growth, the erosion of conditions of life under this circumstance, has fostered a deepening cultural pessimism and associated susceptibility to irrationality within the affected populations.

In all strategic conflict, the proportion of total effort devoted to military exertions as such does not exceed about 20%. Eighty percent or more is consumed in cultural, economic, and political measures, for strengthening our society, and for weakening the threat posed by the adversary. Today, there is much reference to the collapse of the military potential of the West, relative to the rapid and accelerating growth of the military capabilities of Russia. This observation is a true fact, but it draws attention away from the more important fact, that it is in the dimension of cultural, economic, and political factors that our civilization has been losing the war even before it were fought.

The United States and other OECD nations, by tolerating

and fostering the austerity and looting imposed upon developing nations, has been acting against the most vital strategic interests of the Atlantic Alliance. The OECD nations, as nations, gain less than nothing from such oppressive actions.

These developing nations are traditional markets of the OECD nations. The greater the per capita output and income of these developing nations, the greater the market they represent for "technology transfer" qualities of exports from the OECD nations. Those exports are not only income from sales to developing economies; as those exports of capital goods are increased, the rate of turnover of capital goods production in the OECD exporting nations is increased, thus raising the levels of productivity throughout the OECD economies as a whole, an arrangement of the greatest mutual economic benefit.

The developing nations are thrust into resisting the oppressive folly of current OECD nations' policies toward the developing ones. That for which the developing nations fight is in the greatest strategic interest of the OECD nations.

So the external debts of the developing nations are to be seen. It is in that context that we must view the impact on the debt policies of the presently erupting worldwide financial crash.

The financial crash

The present financial crash has been caused solely by the fact, that the leading rentier-finance interests of the U.S.A. and other OECD nations induced their governments to avoid the implications of the 1982 debt crisis, by launching the biggest "John Law"-style financial bubble in history. For the same reason that all such bubbles must burst, this one has now exploded.

At the moment, there are many conjectures as to how the crash was triggered. "Who did it, and why?" is the nature of such speculations. Some attempt to blame "computerized stock-trading." That certainly helped to increase the volatility of secondary markets in securities; it did not cause the crash. Some say that German, or Swiss, or Venetian, or British, or other financier interests decided to prick the bubble; such charges are irrelevant; there are always pin-pricks darting back and forth in financial markets. The question should be, why were the markets so vulnerable to such pin-pricks now, if they were not vulnerable to the same kinds of pin-pricks a few years earlier?

The bubble burst because it was a very much overstretched bubble, floating about in increasingly unregulated financial markets. The fruit fell because it was overripe.

If we look at the individual prices of securities, it might appear that the price-earnings ratio was floating below 200:1. If we trace the sources of what appear to be earnings on particular securities, or if we simply examine the markets as a whole, it is clear that the price-earnings ratio has risen to levels of approximately 1,000:1. Financial markets, especially those in securities and speculative real estate ventures,

represent a “John Law”-style bubble stretched to the bursting-point.

When that sort of bubble reaches that kind of critical value, anything done by governments, central banks, or private investors, must make matters worse. Rising exchange values of currencies threaten to trigger collapse, but so do falling values. Monetary constrictions threaten to set off the crash, but so does monetary expansion. Deficits suggest that budgetary cuts, or higher taxes, or both, are need to stabilize bond markets, but all such measures merely make the situation worse. Some scream that action must be taken to reduce trade deficits, but such supposed remedies produce the same kinds of results as the notorious Smoot-Hawley tariff enacted under President Hoover. Anything governments, central bankers, and private investors do is wrong, but doing nothing sets off the crash immediately.

Confront an investigating team of physicists with these facts. That team will say, “Your system has reached a critical value,” analogous to those sets of absolute, critical values, at which water becomes ice, or vaporizes, and so on. The process has reached the level at which a physical change in state is inevitable.

The crash now in progress occurred because it was inevitable, no matter what governments, central bankers, and private interests did to attempt to stabilize the markets. It is the biggest, worldwide financial crash in history, threatening to plunge the entire world into a prolonged depression much worse than that which emerged over the 1929-32 period of successive financial crises.

Who caused this crash? Who first introduced the utopian dogma of “post-industrial” change? Who proposed to remove the gold-reserve policy from the Bretton Woods monetary system, and to create and maintain a “floating exchange rate system”? Who proposed to introduce what are called the “Volcker measures” to the U.S. economy in October 1979, and to perpetuate these over the past eight years? Who introduced the “IMF conditionalities” doctrines? Who introduced deregulation of the U.S. banking system back during 1978? Who introduced, also beginning 1978, deregulation of U.S. interstate and foreign commerce?

Those are not frivolously academic questions. Those listed changes in policy are the direct cause for the creation of the vast financial bubble now exploding in markets around the world. These policies affected the behavior of economies and financial markets in the same way the adopted rules of any game affect the way in which the game is played and scored.

In a formal Euclidean geometry, or any neo-Euclidean geometry based on deductive analysis of a system of fixed axioms and postulates, every theorem constructed to be consistent with the axioms and postulates is no more than a “hereditary” consequence of what was already implied in the adoption of that set of axioms and postulates. If any consistent theorem in a deductive geometry is shown to be false,

that is conclusive proof that one or more of the axioms and postulates of the entire geometry is false.

The same is true of all deductive mathematics, or any system of formal logic. A monetary system, and the financial markets associated with it, are games conducted according to a set of rules. The rules of the system are based upon a set of underlying, more basic assumptions which mimic the axioms and postulates of deductive systems generally.

When the financial system recently reached the critical limit, at which the crash became inevitable, the point was reached at which no economic recovery will be possible until most fundamental economic and monetary policies of the past 20 years have been replaced by appropriate new policies. Therefore, now that this critical region has been reached, the economy will simply continue to collapse until the old set of policies (axioms and postulates) are discarded, and replaced, in the most sweeping way, with an appropriate set of new policies.

The financial bubble now disintegrating, was set into motion during the years 1967-72, from the November 1967 devaluation of the British pound, through the 1972 Azores monetary conference. The basic structure of the bubble is defined by two axiomatic features of continuing policy: those 1966-67 decisions by the Johnson administration which introduced the doctrine of “post-industrial” utopia, and the Nixon administration’s decisions of the period from August 1971 through the Azores conference, which eliminated the gold-reserve system, and established the “floating exchange rate” system in its place.

These axiomatic changes in policy directions were worsened by the U.S. government’s bungling response to the 1973-74 oil price shift, and the follies of the 1975 Rambouillet, France monetary conference which sealed the doom of the developing nations for more than 10 years to come.

Until 1979, the financial bubble was of the form analogous to a benign tumor. It was causing severe organic disorder in the world economy, but was not a malignant growth. The tumor began to become malignant with the October 1979 adoption of the so-called “Volcker measures” by the Carter administration. The malignancy became “metastatic” with the Reagan administration decisions of the period from about October 1982 through April 1983.

The difference between a very serious “benign tumor” form of financial bubble, and the kind of “metastatic malignancy” of the past 60 months of Reagan’s folly, is that in the latter state the price-earnings ratios prevailing in financial markets of the world are determined increasingly by almost a purely speculative growth in nominal, financial capital gains. In this phase, the tumor’s growth is fed by “geometric pyramiding” of this mode of rise of price-earnings ratios. The tumor becomes almost purely a “John Law”-style bubble.

In the benign tumor form, the bubble can kill the patient, but it does not skyrocket into the critical region of a catastrophic, financial chain-reaction of reversed financial lever-

age, as is occurring now. It is the shift from the linearly parasitical tumor-form of the pre-1979 period, into the geometrical rates of highly leveraged pyramiding of the past 60 months, which defines that special kind of "metastatically malignant tumor" which races, fatefully, into the kind of critical limits zone reflected in the worldwide financial crash we are experiencing now.

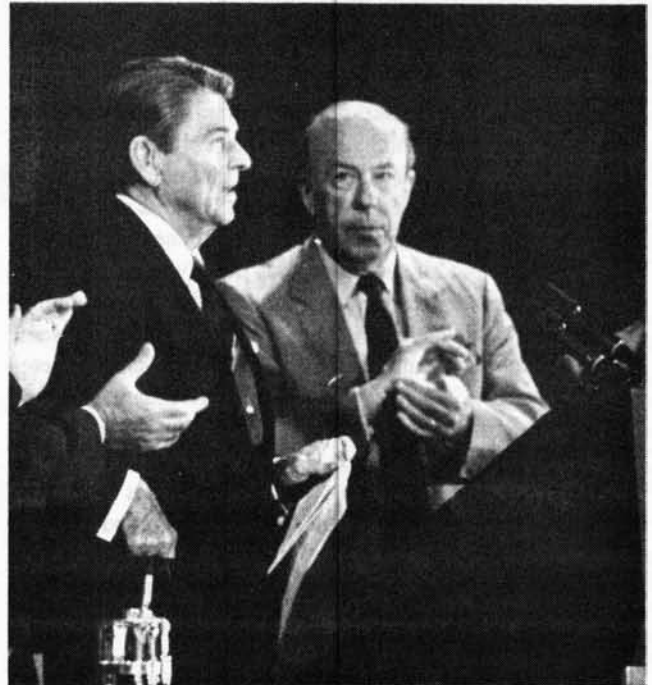
In this state of affairs, the patient can not survive unless we excise totally the malignant portion of the growth. No assets should be used up in the effort to prevent stock markets or the highly inflated portion of real estate speculation from falling to whatever levels of price it may choose to seek out. The problem is to prevent the excision of the malignancy from destroying the patient, too.

The regulatory powers inherent in the sovereign powers of government, must force order upon the financial markets arbitrarily. This regulatory action must defend a limited number of essential, defensible parts of the financial system from the collapse occurring within the stock markets and highly speculative portions of real estate markets. The values which must be defended at all costs, are the value of the national currency and of the principal portion of instruments of governmental debt; under no circumstances, must the national currency or government indebtedness be used in the effort to prop up collapsing portions of the stock and real estate markets, or markets in private bonded indebtedness.

In addition, the government must act to preserve the most essential elements of institutional structure of the credit and banking system. No effort should be made to defend, or "bail out" financial brokerage or kindred firms; let them sink or float on their own resources. It is not critical that major money-center banks be defended, but it is essential that the local banking institution keep its doors open for routine business, even if that institution faces probably years of medium-term financial reorganization before it is fully self-sufficient once again.

Although the government must defend the structure of the most essential institutions, it must not attempt to "bail them out" with more money, or by causing the government to assume fiduciary liability for the indebtedness of any institutions but the national currency and the principal value of the government's own debt. Government must rely solely on the inherent power of sovereign governments to regulate financial markets. If the government does not adhere to these rules, efforts to bail out private sectors will result in the bankruptcy of the state, the one thing which must never be risked, or allowed to occur.

For example, the government's method of keeping open the doors of financially troubled local banks, is solely a matter of employing regulatory authority. By means of regulatory action, the government declares that the insured levels of deposits of depositors are to be claims settled at 100% of the principal amount. It may be necessary to declare these ac-



President Reagan and his secretary of state, George Shultz. The tumor in the economy that became malignant with the October 1979 "Volcker measures," turned "metastatic" with the Reagan administration decisions of the period from October 1982 to April 1983.

counts non-accruing, but they must be settled at 100% of principal value over the medium term of financial reorganization, at the worst.

The government's approach to regulatory action is shaped by knowledge of the method of economic recovery to be employed.

Organizing U.S. recovery

In the United States, we are entering a critical interval, during which relatively no private sources of credit will be available. Yet, everything depends upon steering large volumes of credit at very low borrowing costs into agriculture, manufacturing, other physical goods producing industry, and into the role of federal, state, and local governmental agencies, and public utilities, in capital improvements in basic economic infrastructure.

Yet, despite the acute shortage of private credit, the United States has large and now-expanding resources in the form of unemployed and mis-employed labor, and idled productive workplaces in industry and basic economic infrastructure. The recovery depends entirely on putting those available resources to work, chiefly in producing physical output, or in capital improvements in basic economic infrastructure.

This problem can be solved, and must be solved quickly, to ensure that that transition from the financial crash to the

recovery is very brief. The means for mobilizing the resources of expanded physical output is the issuance of several trillion dollars of U.S. Treasury currency-notes, and the steering of those notes, as low-priced loans, into selected categories of lending in a “dirigist” way. Whoever opposes that course of action is opposed to permitting an economic recovery of the United States; that is their choice, and they must be judged as they choose.

The means of organizing a recovery is illustrated by summarizing the principal steps which must be taken by the President of the United States now.

■ **1.** The President declares a *National Economic Emergency*. This proclamation activates both the President’s relevant powers implicit in the Constitution, and special statutory authorities.

■ **2.** The President acts under this authority, to “federalize” the Federal Reserve banks. He suspends their authority to create Federal Reserve notes for the duration of the emergency, and transforms the Federal Reserve banks into a national bank like the Bank of the United States under President George Washington.

■ **3.** The President, acting under his emergency authorities, imposes exchange controls and capital flight controls, and institutes import-export licensing regulation, as a means of defending the U.S. currency, government debt, and controlling trade balance deficits.

■ **4.** The President, acting under his emergency authorities, imposes tariffs on large-ticket imported items, probably including a tariff on imported petroleum setting the effective domestic price at some level above \$20 a barrel.

■ **5.** The President, acting under the same authority, reestablishes regulation of interstate commerce, especially in transportation.

■ **6.** The President, acting under Article I of the Constitution, sends to Congress an emergency bill, authorizing the Secretary of the Treasury to issue \$1 trillion of an initial issue of a new series of gold-reserve-denominated U.S. Treasury currency-notes.

■ **7.** The President, acting under emergency powers, sets the price of monetary-reserve gold at a price consistent with the average price of production of gold in quantities consistent with world needs under a reestablished gold-reserve monetary system.

■ **8.** The President directs the Federal Reserve System to lend lines of credit at charges of between 1% and 2% per annum for application to investments on an approved list of priorities. The new series of issues of U.S. Treasury currency-notes, deposited with the Federal Reserve System, are the security for these lines of credit.

■ **9.** These lines of credit are offered to the following categories of borrowers: a) agricultural loans for purchases of operating and fixed capital of production; b) loans to manufacturer and other physical-goods-producing firms in the

same way; c) loans to agencies of the federal, state, and local governments for capital improvements in basic economic infrastructure; d) loans to public utilities for capital improvements in basic economic infrastructure; e) loans to domestic producers to finance production and lines of export credit of approved classes of exports.

■ **10.** In general, these loans are negotiated through private local banks. These banks establish fiduciary accounts on behalf of the Federal Reserve System, from which the authorized disbursements are issued on behalf of the borrower’s purchases. The local banker is allowed to charge a nominal fee to the borrower for this service. It is the intent, as rapidly as possible, to draw local bankers into participation in the issuance of these loans.

■ **11.** The President issues an emergency tax reform, providing a higher per-dependent exemption for households, providing investment tax credit incentives shared by both investors, bankers who lend for such purposes, and depositors in those banks. Although the income tax rate for higher brackets is raised generally, the persons in this bracket whose savings share in investment tax credits will pay no more than under previous rates. The object is to induce the nation to save, and to direct those savings into areas of investment which assist the growth of the tax revenue base in production.

The screen of regulation, including exchange controls, capital flight controls, export-import licensing, investment tax credit reforms, and tariffs, protects the value of a new issue of currency being loaned through the indicated mechanisms. Wealth is not money. Wealth is the productive powers of labor, it is production of physical improvements, it is technological progress, it is converting idled productive potential of labor and capacity into useful output.

For the sake of clarity, we should detour briefly from this line of discussion, to clear away the fog with which most so-called professional economists have surrounded the issues involved.

Academic pseudo-economics

Some contemporary professional economists are intelligent insightful individuals, despite the incompetence of everything taught as “economics” in universities and the professional’s textbooks and journals today.

In *political-economy*, we are confronted with the interaction between two distinct kinds of phenomena. In the one part, *physical economy*, we are dealing with economics as a branch of physics: per capita consumption and physical output per square kilometer of land-areas used, variously, for production and for human habitation. In the other part, we are dealing with a political fiction, *money and monetary forms of credit*. *Political-economy* is the study of the interaction between these two distinct kinds of processes.

Modern academic “economics,” is largely based upon, or consistent with some version of Adam Smith’s *Wealth of*

Nations, and the doctrines of *marginal utility* developed by John Stuart Mill, William Jevons, et al. In these dogmas, the assumption is central, that the money price of physical items or personal services bought and sold, correspond asymptotically to some intrinsic *value* of the item bought and sold.

These monetary-utility assumptions are used in the attempt to construct a system of *linear simultaneous inequalities*. It is assumed, as all *econometrics* today is based on such assumptions circulated by Prof. John von Neumann, that all problems of analysis in economics can be treated as solutions to such systems of linear inequalities. Thus, all academic "economics" takes the money-market of buying and selling, as the ontological basis for construction of all professionally acceptable statements about economic processes.

Modern economics began during the 15th century, in papers on the subject presented by George Gemmistos ("Plethon"), successively, to the Paleologue emperor of Constantinople and Florence's Cosimo de' Medici. The first advance beyond the level of Plethon's work, was contributed by Leonardo da Vinci's work on the design of machinery and related capital goods. Out of this, during the last half of the 16th century, the studies of political-economy by the so-called *Cameralists* emerged. Beginning 1672, and continuing through to the last year of his life, Gottfried Leibniz effected a scientific revolution within Cameralism, establishing what became known as *physical economy* as a branch of physical science, and establishing the conception of *technology*, or *polytechnique* as the central feature of *physical economy*.

U.S. Treasury Secretary Alexander Hamilton merged the principles of Leibniz's *physical economy* with an American practice established under the pre-1680 Massachusetts Bay Colony, and promoted later by Cotton Mather and Benjamin Franklin. The Massachusetts Bay Company pioneered successfully in the issuance of a paper currency, as the means for mobilizing productive resources to promote development of production and inter-colony commerce. This integration of the American experiments in monetary system with Leibniz's principles of *physical economy*, is called "The American System of political-economy," as associated with the names of Hamilton, the two Careys, and Friedrich List, among others.

The teaching and practice of this *American System* vanished after the 1870s passage of the U.S. Specie Resumption Act.

In effect, this act revoked that issuance of U.S. Treasury currency-notes which had accomplished the successful U.S. industrial revolution of the 1860s. The U.S. currency, national credit, and public debt, were subjected to control by the London gold standard. European interests operating largely through the London financial market bought up the U.S. railways, metals industry, and mineral assets at bargain prices. The financial and economic power concentrated in the co-conspirators of the London interests took a controlling position in the economy, and consolidated their control over the

leading universities and news media, as well as the U.S. Treasury. The teaching of Adam Smith's "free trade" dogma took over the economics curriculum, and the influence of dogmas of marginal utility was added. Over the course of the 20th century, monetarism took control of the teaching and practice of professional economics worldwide.

The uniqueness of my own professional work in economics has been twofold. I have revived Leibniz's science of physical economy, and have added to that a crucial original discovery: the feasibility of measuring the cause-effect relationship between advances in technology and the rate of increase of the rate of increase of productivity.

The presently ongoing collapse of the financial bubble virtually wipes out monetarism, Adam Smith, and marginal utility, at least for the immediate future. Economies, if they function in any meaningful sense, will now function on the basis of the use of credit generated through government issues of Treasury currency-notes to promote technological progress and expansion of the physical-economic base.

Heretofore, even most patriots of the United States and other Western nations have objected most strongly to my proposals as "dirigistic," as unacceptable violations of the principles of "free trade" and "marginal utility." The collapse of a financial system which represents "free trade" at its absolute worst clears away most of the political force of the objections previously made to my proposed reforms. President Reagan, by carrying the policies of "free trade" to their most obscene limits, through his "economic agenda," has now buried the faith in "free trade" under a falling avalanche of bankrupt paper. Such is the way in which the laws of the universe intervene in history to sweep aside terrible policies which have been hitherto sacrosanct to the overwhelming majority of academic and other popular opinion.

The reason that the malignant tumor form of financial bubble developed, is that it was permitted to develop by a ruling body of opinion based on the teachings of British economic liberalism. The fanatical defense of that monetarist liberalism was so obsessive, that even the collapse of entire productive sectors, and deepening human misery, was not to be considered as evidence that prevailing economic policies had been failures. In face of such obsessive adherence to monetarist liberalism, nothing could persuade the dupes of Adam Smith that "free trade" is a failure, until the monetary system itself collapsed as a result of those policies, eliminating thus the very institution around which the monetarists had rallied their defense.

Now, if we are to survive as a civilization, we will base the future economic policy of our nations upon considerations of physical economy. We shall subordinate money to its useful function as an aid to the functions of physical economy. We shall turn everything which was until recently the most admired economics thinking upside-down. We may do this because we have learned a lesson from the experience; or, we may do this simply because we have no alternative.

'Profit' in physical economy

In physical economy, the net operating profit of an economy as a whole is the margin of increase of output over the required input consumed to produce that output. If the amount of product produced were no greater than the physical costs of producing it, there would be no profit.

This margin of gain is ultimately the result of technological progress. The point is made clear by listing a few of the hypothetical and actual actions required to generate and sustain a constant or growing margin of such profit.

In the hypothetical case, that the entirety of a nation's labor force were always optimally employed, using the current state-of-the-art technology, the rate of advancement of the level of state-of-the-art technology would be, directly, the rate of profit in the economy as a whole, the rate of real (physical) growth of the economy as a whole.

Economies are never in this blissful state of optimal employment of the available labor force, although we should always strive toward reaching that goal. Therefore, other considerations, in addition to the general rate of technological progress, enter into the determination of the net rate of growth of the economy and of the average rates of productivity within it.

By optimizing the percentage of the available labor force employed as operatives, engaged in either production of physical goods or capital improvements in infrastructure, we increase the rate of physical output per capita for the population as a whole. By bringing elements of the labor force employed with less than state-of-the-art technology up to current levels of progress, we increase productivity and the rate of growth of the economy as a whole.

Meanwhile, the potential rate of assimilation of technology is delimited by both the physical circumstances of production, and structural changes in the composition of employment of the labor force as a whole.

The chief physical constraints are three. First, the potential level of technology and productivity is delimited by the degree of development of basic economic infrastructure, as measured in the energy-density of such development per square kilometer of land-area and per capita. Second, the total usable energy per capita. Third, the level of energy-flux density available at the point of production.

The limiting features of the structure of employment of the labor force are, first, those which apply directly to employment of operatives. As technology advances, the urban employment of operatives must increase relative to rural employment. The employment of operatives in production of capital goods, must increase relative to employment in production of households' goods. Within the employment for production of capital goods, the machine tool sector must increase.

This presumes that the percentage of the totality of all other forms of employment (plus unemployment) does not increase significantly, and that the per capita market-basket

of households' goods increases in combined quality and quantity.

However, certain classes of services, unlike administration, sales, and services generally, do have a directly positive impact upon productivity of operatives. These, which I have given the standard classification of "the economic sub-classification of 'overhead burden,'" include science, engineering, technicians, direct administration of production and physical distribution, teaching, and professional and para-professional health services. The required percentage of total employment in this sub-classification of services must increase as the modal level of technology and productivity is raised. Just as generalized increase of productivity of operatives is associated with capital-intensity, so the rise in the absolute level, and rate of growth of capital-intensity is associated with a required increase in knowledge-intensity.

It is urgent that the percentage of employment in other categories of administrative, sales, and services be optimized, not to exceed approximately 30-35% of the total under standard conditions.

For example, the optima to be realized in the U.S.A. by approximately the close of this century are suggested by the following budgetary estimates:

General classification	Percent
Operatives (production, infrastructure)	>45%
Research and development	>10%
Other "economic" overhead burden	< 7%
Non-"economic" overhead burden	<35%

The progress from the present state of affairs, to such optimization, is achieved chiefly through the establishment of a consensus among government and leading employers to this effect. Government contributes its part to achieving such agreed results chiefly by the following means:

- Public credit policies
- Taxation policies
- Regulation of interstate and foreign commerce, as defined in Article I of the federal Constitution
- Capital improvements and maintenance of basic economic infrastructure
- Research and development programs of government

"The American System of political-economy," as established under President George Washington, neatly defines a division of labor between the economic functions of government and those of private entrepreneurship. Government is responsible, at variously the federal, state, and local levels, for basic economic infrastructure; this obligation is met either through governmental agencies, or regulated public utilities. Government, especially the federal government, is responsible for promotion of progress in science and technology. Everything else is left to private entrepreneurship.

In addition to its economic function, government coordinates economic development through its fiscal, monetary,



Brunelleschi's dome of Florence cathedral (15th century). Brunelleschi was the first inventor in recorded history to receive a patent. Patents were granted to unleash technological progress and to free manufactures from the stagnation promoted by feudal guilds.

and regulatory powers and responsibilities.

This arrangement was developed during the 15th and 16th centuries, as an integral feature of the definition of the modern form of sovereign nation-state. The idea of such a state, and the notion of representative forms of self-government for such states, was chiefly an outgrowth of the successive influences of Dante Alighieri and Cardinal Nicolaus of Cusa. The division of economic labor, between state and private entrepreneurship, was conceived in 15th-century Florence, and set into motion by the reforms of France's Louis XI during the second half of that century.

It was recognized, that to unleash technological progress manufactures must be freed from the stagnation promoted by feudal guilds. So, patents granting inventors and their business partners limited monopolies for production and marketing of their useful inventions were introduced, both to break the power of the guilds, and to avoid the pestilences of state bureaucracies in this field. The state could not divest itself of its unique responsibility for development and maintenance of basic economic infrastructure, but entrepreneurship in production, and distribution of produced goods by their manufacturers, was the best mode for promoting technological progress in quality and quantity of goods, unleashing the inventiveness of the individual to the greatest degree possible.

The function of governmental regulation is twofold. On the one side, there are included the government's duty to defend the national currency, public debt, and the development of basic economic infrastructure. Simultaneously, the government is the only agency competent to maintain the protective climate needed for fostering technological progress and general growth in the production and physical dis-

tribution of goods. On the latter account, the regulation of foreign and interstate commerce, as provided in Article I of the federal Constitution, the government's responsibility for organizing the creation and flows of public credit, and the government's obligation to shape policies of taxation, not only to provide the needed revenues of government, but to shape the collection of those revenues in such a manner as to foster healthy technological progress and scale of growth of physical output in the economy generally. The science of physical economy affords us today a much more meaningful way of measuring the performance of government on these accounts, than the crude and misleading methods of national income accounting heretofore recently in general use.

The economic history of mankind, since the hypothetical "hunting and gathering" mode, is a history of the increase of the potential population-density per square kilometer of land-area. This increase reflects an increase in the productive powers of labor, the increase of the power of the average individual per square kilometer of resources available. This increase corresponds to what we define today as scientific and technological progress.

However, the human individual is not a beast. To use the methods of animal ecology, based on the notion of fixed needs of some biological individual, for society, is an ignorant sort of bungling. Human economic needs are increased with an increase of the average productive power of labor, such that continued increases in productive powers depend upon improvements in the quality and quantity contained within an average market-basket of per capita household consumption.

In particular, the quality and duration of the maturation of future members of the labor force rises toward a limit of about 25 years, within greater knowledge-intensity as technology advances. To sustain a more productive mode of existence, life-expectancy must be increased, and the health of individuals at all age levels improved.

The human individual to be considered in studies of increase of potential population-density, is a developing individual, with developing needs. The measure of the human individual required, is associated with the notion that the existence of that individual as a person of relatively increased productive powers, is premised upon increase of quality and quantity of the content of the per capita market-basket of household consumption, in correlation with increase of the productive powers of labor.

This sort of correlation can be formulated in the following way. We must measure all events both in terms of their per capita values, and their values per square kilometer. This twofold aspect requires us to measure in terms of per capita unit of potential (and actual) population-density. This measurement presumes a correlation between rises in potential productivity per capita, and a relative improvement in the quality and quantity of the modal, per capita, market basket of household goods.

The rate of increase of potential population-density, de-

fined in terms of that correlation, serves as the general constraint for all competent forms of mathematical-economic functions. The function is defined in terms of

Variable Rate of Increase of the rate of increase of potential population-density, in terms of per capita values of population-density.

Functions in that form are the only competent sort of mathematical economics.

This function is elaborated in terms of five additional, subsumed constraints. Each of these additional constraints is one we have summarily identified above. Increase in effective productivity (potential population-density) depends upon:

- Increase of the energy-density per per-capita unit of population-density.
- Increase of the effective energy-flux density at the point of production.
- Increase of the urban component of employment of operatives relative to the rural, on the condition that the quality and quantity of rural components of market-baskets of both households' and producers' goods is increased per capita.
- Increase of the capital goods-employment of urban operatives, relative to households' goods, subject to improvement in the households' goods market-basket.
- Increase of the level of technology, as Leibniz defines technology.

It should be obvious to the mathematical physicist, that the metrics of these functions are not defined in scalar terms. Similarly, it is obvious that the function is nonlinear. Those are merely problems of the mathematical formalities. The results of the calculations are readily usable by all relevant functions of government and entrepreneurship, and no different sorts of calculations are competent ones.

The laws of universal creation are rigorous ones, which we may refuse to observe only at our peril. The Creator who devised these laws was not a functional illiterate, who designed the universe's laws to conform to the desires for easy comprehension by the illiterate. Economic science is a branch of physical science, and in some respects necessarily more advanced in its learning requirements than the physics of simple inorganic objects on the ordinary macroscopic scale. To master economics, one must master the science required; one fails to meet that challenge, only at one's peril.

Despite the learning difficulties associated with the mathematical function indicated, the general rudiments of economic science are readily comprehensible by any person who is sufficiently qualified to be tolerated in a function of entrepreneurial management or relevant policy-shaping functions of governments. The latter can readily understand the practical significance of the results of the calculations delivered by the economic science specialist. In any case, the world has suffered more than enough from an age of

functional economics illiteracy among professional monetarists and their credulous admirers.

The strategic implications

The present financial crash tends to sweep from the stage an age of rule by a bungling rentier-financier interest. The pyramid of financial speculation is destroying itself, and the political-economic power associated with that pyramid is greatly weakened in the process. To survive, we must clear this rubble from the political stage; the enfeeblement of that ruined interest encourages us to make appropriate changes in institutionalized forms of practice within and among nations.

The specific changes we must introduce, if we are to survive, are fairly described as a shift from domination of economies by monetary interest, to enslavement of monetary functions to service of the real economic processes. The sturdy, independent member of the labor force, and the entrepreneur progressing in the technology of production of goods, are the millions of kings who rule each nation.

The new arrangement we must adopt even for our immediate, bare economic interest, is an ordering of events consistent with the genius of Western civilization since Solon, and, more emphatically, since St. Augustine. The creative mental powers of the individual person assume center stage, as the ruling measure of social values, of morality, and in direction of representative forms of self-government of sovereign nations.

As we are each impelled to adopt this course of action as our urgent self-interest, the so-called developing nations especially so, but also the OECD nations, we are impelled to recognize this as our common interest. This impels us to form the *Concordantia Catholica* envisioned by Nicolaus of Cusa, a universal system of sovereign nation-states, each subject to no higher authority than common submission to the universal principles of natural law.

It is that sort of unity which must bring us together as a single community of principle, the community of Western civilization. All alliances, all other treaty agreements, and the general shaping of our dealings with one another, must be so shaped.

We must so recover the source of our civilization's potency, and cling to that more stubbornly than ever before, because we know we have come so near to losing everything as a consequence of neglecting that commitment to our precious heritage.

The greatest degree of that power lies not in any one of our nations. Divided, we are each weak, including the United States. It is the concurrent rallying of each of our nations to this common purpose, which is the source of our potency. Restoring that potency to rulership over our common affairs, is the most urgent interest of each among us.

Let us therefore recognize that ridding ourselves of a malignant cancer, rather than attempting to live with it a bit longer, is the only fundamental self-interest of each among our nations.