

## Why the So-Called ‘Economists’ Were Wrong: Financial versus Economic Analysis

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It has long been a popular delusion, that a major economic depression must follow a major stock-market crash, as night follows day. During the recent 50 years, inside the United States, this popular belief has made most frequent reference to the famous New York Stock Exchange panic of 1929. People, including many who call themselves “economists,” take it for granted, that once the 1929–31 wave of financial collapses hit, the 1930s Great Depression was inevitable.

For that and other reasons, a rise in the Dow Jones Index is generally seen by wishful dreamers as a sign of economic health. The merest hint of a brief rise in that Index is sometimes sufficient to transport wishful dreamers into manic euphoria. Such beliefs may be popular ones, but the difference between ordinary and popular delusions, is that it is the most popular delusions which are most likely to have fatal consequences.

What caused the Great Depression of the 1930s, was not the 1929 stock-market panic. That Depression was caused by the budget-cutting and other austerity measures taken by President Hoover and the Hoover Congress over the period 1929–32. The Depression became inevitable when the governments and bankers of Europe reacted with policies in the same spirit as the Hoover administration’s.

What the Western governments did, was to loot production, trade, employment, and wages, in a desperate and futile effort to perpetuate the policies which had caused the financial crisis. The reason the financial markets were collapsing, in the first place, was that the Versailles monetary system created at the end of World War I, had become a vast financial bubble.

International finance, from the Versailles conference onward, had been an inverted pyramid standing on its tip. What the British and French owed to the Americans was guaranteed by the unpayable war-reparations debt which Weimar Germany owed to the British and French. The system was built around the assumption that Germany must pay this debt, and credit was extended and pyramided throughout markets on the assumption that ultimately the Germans must pay.

When the negotiations about yet another reorganization of the pyramided German war-reparations debt, the so-called Young Plan, showed plainly that that debt was never going to be paid, the bloated, already leaking financial bubble burst.

The financial bubble should have been allowed to collapse in some orderly way, while using the power of governments to create new credit to build up a parallel, new financial and monetary system, to expand production, trade, and employment. Eventually, the United States did get around to such measures, which is how the later recovery from the Depression occurred.

Today, we can not emphasize too much, that what Hoover and others did, was directly opposite to what should have been done. Successive waves of such austerity-measures, during the 1929–32 period, pushed the level of production and trade below the economic break-even point, the point below which not enough is being produced and traded to maintain the physical economy. The sharp cut-off in credit-flows to production and trade, over the summer and autumn of 1931, drove the physical economy below this break-even point. Then, the economy itself collapsed, and the Depression of the 1930s began.

Had the Hoover administration taken a different route, beginning 1929, that Depression would not have occurred. Had low-cost credit been generated by the U.S. Treasury and steered into investments in physical output, at any point prior to the British pound devaluation of September 1931, the financial bubble would still have collapsed, but the economy would have gone into a non-inflationary expansion.

This is the lesson to be drawn for today. We proceed now with a summary of the most recent developments, and how they came about, and after that examine the way in which financial markets and physical economy, although two very distinct processes, interact.

### ***The Reagan Bubble Pops***

At about the time of the Black Monday stock-market panic, President Ronald Reagan broadcast his assertion that the U.S. economy had passed through 59 months of uninterrupted recovery. Then came the President's November broadcast; as if by clockwork, the President announced that there had been 60 months of uninterrupted recovery.

Different people hear things differently. One must suppose, looking at popular opinion about us these days, that most people hearing the President tick off his announcements of yet another month of "unbroken prosperity," never asked, "What was it that happened 60 months ago?" I counted. I remember the incident of October 1982 very well; I was on the losing side in an economic-policy fight, over the Mexico debt-crisis, within the Reagan

administration at that time. That policy-fight is the reason the President's script-writer dates the beginning of the so-called "economic recovery" from October 1982. That is the date President Reagan chose the pathway leading into the Big Crash of 1988.

By the summer of 1986, it was virtually a settled fact that 1988 would be the year of the Big Crash. The President's decisions of October 1982, in tandem with actions of fellows such as Citibank's Walter Wriston, had created the biggest financial bubble in history. *EIR* also knew that the October 1986 deregulation of the London stock markets was going to throw an added element of instability into world markets.

This instability was added at the point that price-earnings ratios of private securities were floating between 100 and 200 to 1, nominally, and near to 1,000 to 1 in many cases, if one acknowledged the highly leveraged content of what passed for earnings income. Under the circumstances, *EIR* knew that we must expect some major financial shocks already in 1987, even before the Big Crash scheduled for 1988.

About that time, U.S. Treasury Secretary James Baker III seemed to turn as mad as the proverbial Hatter. ("Alice in Wonderland" comes up with increasing frequency, when one is speaking of Reagan administration economic policies.) During early 1987, Baker began pushing down the value of the U.S. dollar. Since the U.S. has come to depend more and more on vital categories of imports, and is the world's biggest debtor at this time, driving down the price of the dollar on world markets is obvious lunacy. Baker insisted it was going to improve our trade-balance, although, in fact, it could only make the United States' balance of payments accounts much Worse.

It seems that Baker hates Western Europe and Japan. The real purpose of his driving down the dollar, was not to improve U.S. trade-balances. His purpose was to clobber our allies in Western Europe and Japan, our major creditors. He wishes to terrify those neighbors of ours into obedience, by burning down the neighborhood. He appears to be one of those fellows who thinks the clever way to burn down the neighbors' houses, is to set fire to one's own.

By March and April, bond markets were in deepening trouble as a result of this; when bond markets slide downward under a collapsing dollar, over months, stock markets as hyperinflated as this one are soon to follow.

The international bankers pulled on Baker's reins, beginning about May. Perhaps as much as \$90 billion of reserves, or more, were poured in to prop up the sagging dollar at the level to which Baker had driven it by the beginning of the spring. Futures markets were stretched to the limit, to keep the stock-market bubbles puffed up into August. In May, I calculated: "The stock-market boom will hold up for about three months, this way, and will almost

certainly reach a ripeness for a major blow-out by about the end of early October's settling of accounts."

I am an economist, not a financial analyst; I make stock-market forecasts very rarely. I comment on the economic consequences of developments in financial markets; but, rarely have I forecast the month of a major turn in financial markets. My release of May 26, 1987, forecasting the October blowout, was one of the rare occasions I have indulged in stock-market forecasts.

The preceding occasion was during spring 1982, when I forecast a debt blow-out to hit markets "not later than September" of that year; the blow-out hit the markets in mid-August. So, on May 26, 1987, I forecast a probable first shock of a new worldwide financial collapse to hit during October; over the interval between October 6 and 19, it happened.

Today, the world is in a deep financial collapse, analogous to 1929–32 but much worse. So far, the Reagan administration, the leadership of Congress, and most foreign governments are behaving just as foolishly as the Hoover administration, the Congress, and most of the governments of the world did, back in 1929–32. If we look back to 1929–32, and compare the addresses and measures of the administration and leaders of the Congress then and now, the words and actions are nearly identical.

The collapse is the bursting of a gigantic international financial bubble, most of that bubble built up over the same 60 months to which Ronald Reagan referred in his recent broadcast. He is striving so desperately to insist upon an economic recovery which in fact never occurred, that he appears willing to do almost anything except admit that his policies of the 1982–87 period were costly errors.

### ***Bush League Thinking***

By late November, there was great concern inside the presidential campaign of Vice President George Bush: Would the really big crash come during the spring of 1988, or could Bush's friends in Washington, on Wall Street, and in Western Europe find enough chewing gum and toothpicks to hold the international financial system together until after the November 1988 election? Unless madmen attempt to deal with this crisis with the sorts of hyperinflationary measures as the German Weimar Republic adopted during the 1921–22 period, the big deflationary blow-out is scheduled to occur before the summer of 1988.

Theoretically, by hyperinflationary schemes—if Tokyo and Western European capitals all agree to go along with such tactics—Vice President Bush might conceivably succeed in

stalling the visible big financial crash until after the November 1988 election. There is probably not enough loose chewing gum and toothpicks to hold things together past summer. It seems unlikely that any Republican could be elected President in November 1988.

“Sixty months of unbroken recovery” simply never happened. Any healthy economic growth means hefty increases in per capita constant-dollar income of the average household, plus hefty increases in revenues from capital improvements in basic economic infrastructure, agriculture, and industry. A market rising on the basis of such a real expansion of earnings does not become a financial bubble. Financial bubbles are formed, and collapse, as this one is doing, when the earnings were largely fictitious ones.

### ***Reagan Inherited Bad Policies***

Reagan created the bubble that is bursting now, but he did not begin the collapse of the U.S. economy. He merely continued the economic downslide, and made it significantly worse, especially with his second-term measures of added deregulation, trade-war noises, and Gramm-Rudman budget-cuts. The erosion leading into the economic collapse of the Reagan years had begun about 20 years earlier, at about the time California Governor Ronald Reagan was first being seen as a potential national political figure of the future.

The downslide of the U.S. economy began during fiscal year 1966–67, when President Johnson’s administration cut the rate of high-technology capital formation in basic industry, and inaugurated malthusian population policies, consumerism, and the “post-industrial society.” Nixon made it much worse, by introducing the Milton Friedman policies leading into the crisis of summer 1970, and the collapse of the dollar in August 1971.

Nixon made it much worse, by acting to scrap the gold-reserve monetary system, and force our allies to adopt a “floating exchange-rate” system, instead. He should have done what Johnson failed to do in the February–March crisis of 1968: raise the price of monetary-reserve gold to a fair-market price, rather than allowing the price of the U.S. gold reserve to be held way below its true value.

Nixon reacted wrongly to the petroleum-price crisis of 1973–74. Instead of cutting the energy-consumption of a U.S. economy whose productivity and growth depend upon expanding energy-supplies, as he did, he should have launched a large-scale expansion of U.S. domestic energy-production, combined with agreements with petroleum-exporting nations in the Americas.

Carter was a disaster on every count, including his monetary and economic policies. Carter capped all his other blunders with his October 1979 introduction of the “Volcker policies.” As Paul A. Volcker himself had stated in England during the previous spring, while campaigning there for appointment as U.S. Federal Reserve chairman, that the right name for these policies was “controlled disintegration of the economy.” That was the name the policy had been given at birth, by its mother, the New York Council on Foreign Relations. CFR had sponsored a 1975–76 task-force study, named Project 1980s, in which this policy was a prominently included feature. N

Unfortunately, the CFR task-force had done its work all too well, and Volcker proved very skillful in its implementation. Beginning October 1979, there was a continuous controlled disintegration of the U.S. economy, leading into the deep recession and debt-crisis of 1982, and the financial panic now in progress.

So, President Reagan is not to be blamed for the present economic disasters. Except for one thing, he did nothing but continue the Carter administration’s monetary and economic policies, as Carter had continued, and worsened the policies he had inherited from Johnson, Nixon, and Ford. The terrible thing which Reagan added to all the follies which he inherited and continued, was the decision he made in October 1982, the time from which he dates his non-existent “uninterrupted economic recovery.”

A few remarks on the October 1982 decision set the stage for examining the deeper question which is the principal subject of this report.

### ***‘Operation Juárez’***

Back in 1982, I was on relatively good terms with the Reagan administration. In the bipartisan agenda which I had presented to the transition team, during December 1980 and January 1981, I had included the proposal for what became known later as the SDI. I was occupied in defining the technical and economic feasibility of a crash program to develop and deploy such a defensive system, and was conducting some back-channel discussions of this possibility with Soviet channels on the Reagan administration’s behalf.

About January 1982, it was clear that U.S. support for International Monetary Fund (IMF) austerity policies was creating the preconditions for explosion of a near-term debt-crisis in Mexico and nations of South America. During the spring of that year, I coined the term, “debt bomb,” which *Time* magazine and others put into general usage later that year. By the end of May, it was clear that the explosion of that debt-bomb would begin not later than September. I discussed this problem with members of the National Security Council, as well as my friends in or close to a number of governments of Central and South America.

These discussions of the “debt-bomb” crisis reached a turning-point during the same weeks I met with an old friend, Mexico’s President José López Portillo. We had not met for direct discussions earlier, because of the heavy pressures on the Mexican government, especially from U.S. banking circles, not to permit such a meeting to occur. We had transmitted our thoughts through my intermediaries with whom the President met periodically, or our more frequent meetings with his. The time had come for us to meet.

I warned Mexico’s President: They—the New York banking crowd—intend to take your country apart piece by piece. The crisis will hit no later than September. What I indicated as taking Mexico apart piece by piece, was both what has been done to Mexico since October 1982, and the additional wave of destruction, centered around the former Nazi sympathizer-party of Mexico, the PAN, now in an advanced stage of preparation for unleashing during 1988–89.

During the same week, I met, less conspicuously, with other leading figures of Hispanic America. One of the spokesmen proposed to me then, that the time had come for action on the debt-crisis along the lines I had been proposing for seven years. What was needed to guide policy-shapers, was a book summing up both my analysis of the problem and the proposed measures to be taken. That discussion led to my production of such a book-length report, entitled *Operation Juárez*. This book was completed by the end of July, and issued to the Reagan administration, as well as various circles in Central and South America during the first week of August.

Within two weeks, the crisis I had projected for not later than September hit, in the form of the Mexico debt-crisis. For about an hour, the entire international financial system hovered on the brink of chain-reaction collapse. President Reagan was induced to telephone President López Portillo, making offers which averted the panic. Then, President López Portillo acted along the lines I had outlined in *Operation Juárez*. For approximately a month, Mexico appeared on the road to economic recovery; a general solution to the “Latin American debt-crisis” appeared in sight.

What was planned, according to my discussions with leading Mexican economists, was a mobilization of broad-ranging capital improvements in Mexico’s infrastructure, proceeding with water-management projects to increase the nation’s agricultural productivity, and an industrial development nourished by the expanded markets in infrastructure-building. The governments of Argentina and Brazil were temporarily committed to allying with President López Portillo on the policy.

Had this continued, there would have been no continued U.S. budgetary crisis, trade-balance crisis, or the present financial collapse. The expanded capital-goods markets in

Central and South America would have stimulated the U.S. economy's industrial growth, and shifted Japan away from dependency upon U.S. markets into growing opportunities for capital-goods exports into the developing sector. Western Europe would have benefited considerably, especially West Germany, Italy, and the Iberian Peninsula.

Unfortunately, with the greatest opportunity for success in more than 20 years right in his hands, President Reagan flubbed it. He listened to other voices, including that of Citibank's Walter Wriston. Mexico was crushed, and the biggest financial bubble in history began to be built up around the New York City and Boston financial markets. The following year, every member of the Reagan administration associated with me in pushing through the SDI, and in discussions of *Operation Juárez*, was pushed out of those positions, replaced by persons less unacceptable to both the Democratic and Republican cronies of Moscow's Comrade Armand Hammer.

With the backing of the International Monetary Fund, and supranational private financial syndicates, the United States looted the economies of its allies in Central and South America in the following way.

Technically, most of these nations owe not a penny on their long-term external debt now listed at nearly \$700 billion. If we go back to 1974, and trace the history of those nations' external indebtedness in terms of both the original loans taken and payments on those loans, the original debt has been repaid entirely, or in the greatest part. Even by 1982 standards, those nations have paid about a net \$150 billion against a nominal debt of \$450 billion then. More than the entirety of the increased debt of those nations since 1982 is a pure financial swindle out of the tradition of New York waterfront loan-sharks from the 1940s and 1950s.

What the supranational financier syndicates, the IMF, and the Reagan administration have dictated to these nations, under the rubric of "IMF conditionalities," is the following.

1) Drastically lower the price of your currency: thus lowering the earnings from imports and increasing the cost of paying the same amount of dollar-denominated debt-service; 2) shut down all investment, and even entire sectors of industry, to convert that "saved" money into debt-service payments; 3) pay with increased exports of manufactures, raw materials, and food, at the expense of the internal economy.

In that way, the U.S. has been skimming off an additional several hundreds of billions of dollars annually from the economies of Central and South America, including the siphoning off of more than \$100 billion annually in "free imports" of manufactures, raw materials, and foodstuffs into the United States.



The result of this arrangement is to inflate the external debt of these nations, while destroying their capacity to continue to pay debt-service even at levels of earlier periods.

A similar process has been occurring, at the same time, inside the economies of the U.S.A. and Western Europe. Agriculture and industry, as well as the simple maintenance of basic economic infrastructure, has been looted to provide earnings income to support speculative gains on financial markets. The effect suggests a man eating his own leg, to nourish himself in preparation for competing in a marathon. Productivity and productive capacity have been destroyed in the process of looting physical output's capacity to produce revenues, in order to increase the margin of short-term capital gains in financial paper.

This has been Reagan's "60 months of uninterrupted economic recovery." That "recovery," such as it is, came to a panic-stricken halt on October's Black Monday.

### ***Fraudulent Accounting Practices***

Ever since approximately 1966–67, under Lyndon Johnson, the federal government has resorted increasingly to fraudulent accounting practices, to produce the economic data reported for political effects. One might prefer to the word "fraud," "politically cosmetic adjustments in statistical perceptions." I prefer to call it fraud.

The Reagan administration, including the statistical section of the Federal Reserve System, has been engaged in increasing fakery of this sort over the recent five years. Unemployment figures are lowered simply by dropping millions of unemployed from the labor-force statistics. The rate of inflation reported is lowered, by attributing large chunks of price increases to non-existent "value improvements." Another trick, is to change some of the accounting definitions used, from one accounting period to the next. "Seasonal adjustment" is one of the important opportunities for deliberately misleading statistical manipulation used. In large degree, "basic economic indicators" are made up out of thin air.

If all of that sort of fraud were cleaned out of federal statistics over the past five years, there would have been only a few months during which an actual improvement might have appeared to have occurred. Even those months show a significant economic deficit if certain fallacies inherent in the Gross National Product method of national-income accounting are corrected.

Outright fraud aside, the key to understanding how the presently ongoing collapse of the financial system was brought about, is study of the fallacies inherent in the present system of national income accounting. That system was devised under the direction of a Soviet-trained, one-time Harvard economist, Prof. Wassily Leontief. The measurement on which the system

is based, is called "Value Added." Value Added represents, most simply, the increase in selling price over costs.

In such a system of accounting, every class of seller and purchaser is listed twice: once as a buyer, and again as a seller. A chart is constructed, divided into rows and columns. In the rows, the sellers are listed; in the columns, the buyers. The total Value Added accumulated by all of the sellers in a year, is estimated as the net product of the nation for that year.

The system has a few added refinements, which are not relevant to this report. We are concerned only with certain among the axiomatic fallacies built into the system as a whole, and only with those fallacies which tend to cause accounting to show the national economy operating at a profit, when it is in fact operating at a loss.

The most obvious of the errors in the system, is the fact that it makes no distinction between two general classes of cost and expense: costs of producing physical output, and those aspects of a national economy, such as administration, finance, sales, and not-production-related services, which are analogous to "overhead expense" in a manufacturing firm.

For example, let us suppose that General Motors decides to get out of production, and shift its operations into such soft categories as finance, real-estate speculation, and sales of not-production-related business and services. Let also suppose it retains the same total number of employees, at the same pay-scales, in the new mode, as in the old. The result would be, that the apparent Value Added contributed to the National Product by a "post-industrial" General Motors would remain about the same as when it was still manufacturing.

Let us suppose the U.S. economy as a whole is moving in that "post-industrial" direction, as it has been doing for about 20 years. The result is less physical output per capita, for the population as a whole, and less physical output per square kilometer of land-area, precisely as has been the direction of drift over the past 20 years, precisely as has occurred over the past 14 years. Yet, the nominal Value Added has generally increased over this period as a whole.

During five years, 1983–87, of the 1980–87 period, with collapse of standard market-basket value of physical output per capita and per square kilometer, with basic economic infrastructure rotting, agriculture being collapsed by looting of farm income, and entire industrial belts collapsed, there has been reported a steady growth in numbers of new workplaces (chiefly in low-paid services) and in GNP!

So, on the grounds of GNP data, and by aid of some bits of statistical fraud, the President has declared a collapsing economy to be "fundamentally sound," and a collapse of the economy's productive potential to be a process of "uninterrupted recovery." Such are the

yardsticks which the federal government and others have used to measure the performance of the economy. Policies of government, and firms, have been adjusted to show improvements according to such absurd yardsticks, with the result that the rate of collapse of productive potential is accelerated in order to show greater prosperity as the yardsticks used define “prosperity.”

The absurdity of it all is underlined by the recent year’s discussion of the federal budget crisis. If we use a strict market-basket standard of accounting, the constant-dollar level of the federal operating budget has been declining over the Reagan years, in all categories excepting entitlements and debt-service accounts. Debt-service alone has been the largest single chunk of the annual federal operating deficit. So, it is clear that the budget-crisis has been caused by a collapse of the federal tax-revenue base. Outside financial sectors, the constant-dollar level of farm and business income, and household incomes per capita has been declining, as would have been impossible had there ever been a genuine economic recovery under Reagan.

On economics, the President is an irrational ideologue. The very notion of an “invisible hand” was something which the British East India Company’s anti-American tract-writer, Adam Smith, had introduced into political-economy as a new disguise for the doctrine of irrationalist hedonism which had been the centerpiece of his 1759 *Theory of the Moral Sentiments*. By definition, Smith insists that the “invisible hand” is an unintelligible principle, hence an irrational one. The most weak-brained of the celebrated economics professors, Milton Friedman, insists upon this, as does the President.

What the President has done in all his economics and monetary policy, is to apply this unintelligible—purely irrationalist—dogma to all sorts of situations, including his passion for “free trade” and “deregulation.” He shapes his economic policy to fit this dogma, and his administration variously fakes the statistics or simply chooses incompetent yardsticks, to show that the President’s ideology is working successfully—whether it is, or not.

The collapse of U.S. agriculture, amid a worsening worldwide food-shortage, he sees as a necessary fulfillment of “free trade” policies. The collapse of industry, he regards similarly. The shift of employment, from skilled and semi-skilled manufacturing, into low-wage, highly redundant unskilled services, he sees as a sign of growing prosperity.

True and numerous as the President’s flaws are, we must not tolerate his being made the scapegoat for the crisis. President Reagan himself has done very little the seven years he has been in office. He was not in the same class of passivity as a White House doormat—a useful object in its own right, but it is a useful correction of popular prejudice to tilt perceptions a bit in the direction of such comparisons.

### ***The 'Establishment' Factor***

In a literal reading of our federal Constitution, the President is responsible for the consequences of all policies excepting those sometimes imposed upon him by the Congress or the federal courts. In reality, our constitutional form of government has become to a large degree merely an appendage of a “behind-the-scenes” oligarchical power loosely identified as “the establishment.” As Elliot Roosevelt reported his father’s wartime observation, during this century, the government of the United States has been altered subtly, but persistently along the lines of a parliamentary model supplied by the British system. That trend was established by Franklin Roosevelt’s cousin, Teddy, at the beginning of the century, and has been more or less in continual progress since.

Today, since about 1963, throughout Western nations, the quality of elected politicians has been systematically eroded, replacing the “strong political personalities” of the earlier periods with a mixture of political mediocrities and what are termed often administrative “technicians.” Whatever we might assume from study of our Constitution, the power of Presidents and Congresses to design and implement policy has been eroded to the degree that the President and Congress become almost a theatrical diversion acting out lines dictated to them by the establishment.

To master the crisis now enveloping our nation, we must understand and remove the causes for that crisis. To do that, we must go back no later than about 20 years ago, when the Johnson administration of 1967–68 introduced the first significant changes in policy leading us into the present catastrophes.

The mess we are in was built up by 20 years of bad policy: the “post-industrial” drift into obsolescence and ruin, the lunacy of the “floating exchange-rate” monetary system, Volcker’s “controlled disintegration of the economy,” the bestial savagery of “IMF conditionalities,” and the past five years’ build-up of the biggest financial bubble in history. None of those five Presidents created these policies, and most of the time none of them really understood what he was doing when he pushed such policies through, or merely defended them. During the past 40-odd years, the important policies of government were created within an “establishment” that has remained a fixture of power as Presidents came and went, chiefly the “liberal Eastern establishment.”

That “establishment” is not rational. This is not to imply that many of the individual members of the establishment are not rational by all ordinary standards. It is to underline the fact, that the way in which the establishment is organized reduces policy-deliberation within the establishment as a whole to a kind of process of bargaining which leaves no room for rationality in the results of this bargaining.

The establishment is a collection of power-blocs, which reach majority-decisions not on the basis of reason, but by “cutting deals.” Once a bargain is struck, that bargain becomes the policy of government. Very often, the policy adopted makes no sense. It is not supposed to make sense; it is supposed to be policy.

“Reagan’s economic ideology is pathetic? You are right, of course; but that is not the point. Silly as it is, that ideology happened to serve our purpose at the time. That was our decision; buck it, as you did, and we teach you a very painful lesson we hope you have the sense to learn. It is very dangerous to oppose establishment decisions.” The establishment’s view of the matter is that it makes the rules, and allows no outsider to attempt to break those rules once the establishment has agreed upon them for the time being.

So, we should not be surprised that U.S. monetary and economic policies make no sense; they weren’t supposed to. These policies were chosen because that was the irrational compromise struck among a majority of the establishment.

How powerful is this establishment? Dear ladies and gentlemen, we don’t wish to upset you unnecessarily, but you are living under a very efficient sort of dictatorship, with many painful similarities to George Orwell’s fictional *1984*. It is a dictatorship of an establishment that is just as irrational, capricious, unjust, and cruel as the fabled Zeus of Olympos. It is a terrible power, an awful tyranny, but most of you have worn its shackles for so long, you no longer remember the freedom you surrendered years ago.

In the U.S.A. today, there is but one more terrible power than the Olympos-like establishment, the Creator Himself. To deal with the hubris of establishments such as our own, the Creator has embedded some terribly efficient laws in this universe. Those who like to see justice within their own lifetimes are often disappointed by what appears to them to be the slow pace of the Creator’s judgment upon evil-doing establishments. An adult’s generation is a span of about 40 working-age years; sometimes generations pass before the laws of Creation overtake the hubris of the Olympian establishments.

So Athens was crushed in punishment for its condemnation of Socrates, but Socrates was dead more than a generation before the punishment was administered. The peculiarity of the present moment of crisis, is that after about two generations of terrible bungling, the Anglo-American Olympians, the principal rulers of the postwar world, have come before the seat of judgment by the Creator’s laws; a judgment beyond their power to defy has overtaken them. The time has come for them, as for the Biblical Sodom and Gomorrah, that they must abruptly change their ways, and become rational, or they shall be destroyed, along with many of us hapless folk who have been cowardly enough to tolerate establishment follies.

We did not tolerate the idiotic policies of the past 20 years because it was proven to us that these were rational policies. How could the majority of senior citizens, or farmers, or former employees of vast tracts of idled industrial enterprise, believe a word Reagan said when he spoke of 59 or 60 months of uninterrupted recovery? We did not believe a word of it; what we believed was that Reagan's expressed policy perceptions on the economy were backed by a power too awesome for us to challenge.

The journalist asked the impoverished citizen: "Do you have faith in the economic recovery?"

"Of course," the poverty-stricken citizen replied brightly, smiling into the camera, "I watch television and read the newspaper headlines."

Riesman called such behavior "other-directed." Under dictatorships, the slaves enjoy the consolations of going along with the crowd. "It is easier to get by, that way." Nazi Propaganda Minister Joseph Goebbels would understand, perfectly. That sort of "other-directed" society is what most of you have become. That is how you gave up your freedoms so easily, and why you are able to tolerate that loss of freedom with so little sign of resistance.

In a society which has accepted the liberal's philosophy, that all values are relative, that there is no provable truth, how can anything be a lie, unless it is shown contrary to what is called "popular opinion"? Is the economics ideology around Washington a cult-dogma which sometimes appears to be as arbitrarily irrational as the teachings of the Khomeini dictatorship? Are the yardsticks used to measure prosperity absurd? As long as popular opinion can be induced to regard these as authoritative policy, who dares object—barring the countervailing action of the laws which the Creator has embedded in this universe.

It becomes the case, that if a nation or civilization, such as our own, continues to conduct its affairs in defiance of morality and reason, as ours has done, there is no remedy for this state of affairs except that the laws which the Creator has embedded in creation shall crush old policies and establishments as millstones pulverize grain. That is why we never get out of bad policies such as those of our past 20 years, except through crises so potent that they threaten to crush our nation itself, as we are so threatened now.

If we continue the present way of making national policies, our nation, our civilization, are doomed over the few years ahead. We have come to the time when that decision must be faced. To escape doom, we must turn to the very rationality we have evaded these past 20 years. We must discover the intelligible laws which govern physical economic processes, and adopt those laws as our laws of daily practice. Among the changes we must make to that effect, is to discard as rubbish everything taught as "economics" in our universities and in

Washington these past decades, and learn and apply a rational form of economic science instead.

### ***Finance and Economy***

At the outset of this year-end report, we stated that it is not necessary that a deep economic depression must follow a deep financial crash. It is only when sovereign government refuses to understand and act upon the fundamental differences between financial and economic processes, that government reacts to a financial crisis in ways which cause an economic depression.

This brings us to the crux of this report: The nature of those differences between monetary and economic processes, which are key to ensuring that an economic recovery, not a deep depression, comes out of this financial crisis. We begin, appropriately, with a few of the ABCs of modern economic history.

Modern principles of national economy began to be defined at Florence, under the great Cosimo de' Medici. Economic science was completed in all essentials during the lifetimes of French Minister Jean-Baptiste Colbert and Gottfried Leibniz. Leibniz's science of physical economy is the formal foundation of a systematic economic science. That economic science was the foundation for what U.S. Treasury Secretary Alexander Hamilton was first to name in print "the American System of political-economy."

The emergence of economic science, over the course of the 15th through 18th centuries, divided Europe and North America into two principal factions. On the one side, there were the advocates of entrepreneurial agro-industrial capitalism, typified by the American System of Hamilton. The opposing faction was a relic of feudalism, the Lombard system of rentier-finance.

Beginning the second half of the 15th century, especially after the brilliant success of France's King Louis XI, the old, well-established feudal system of rentier-finance was forced to adjust itself to the powerful insurgency of a system of national economies of sovereign nation-states. With the failure of the Venice-backed Hapsburgs to crush France and England, especially France, rentier-finance found itself obliged to adapt its practices to the entrepreneurial-capitalist policies associated with national economy. So, during the 18th century a rentier-financier dogma of political-economy was developed, in direct opposition to national economy.

In the form it has assumed today, this new dogma of Lombard rentier-finance practice in an industrial age, was radiated from French-speaking Switzerland's Geneva and Lausanne. The

vehicle through which this was more widely transmitted was the Venetian Levant Company, which moved into northern Europe to assume the new guise of the East India Companies of England, the Netherlands, and Denmark.

So, the Second of Earl of Shelburne, America's and France's mortal enemy of that period, sent his agent Adam Smith to study under Geneva bankers and French Physiocrats. The result was the anti-American propaganda-tract of 1776, Smith's *Wealth of Nations*.

In the history of the United States, the agents and partners of the East India Company formed the Tory faction of 1763–1814, the party led for a time by the East India Company's Aaron Burr. This has been the core of the rentier faction, the liberal establishment, in the United States to the present time. The opposing, patriotic party, were the representatives of the American System of political-economy, entrepreneurial, agro-industrial-capitalist national economy.

So, our national history has been pivoted on the swings, back and forth, between predominance of the patriotic and the rentier factions and their respective policies. Washington's administration was based on the American System. Under the influence of Anglo-Geneva agent Albert Gallatin, the Jefferson and Madison administrations introduced Adam Smith's rentier policy, and nearly ruined our national economy and national defense. Monroe and Quincy Adams reestablished the American System. Jackson and Van Buren ruined us with their banking deregulation and "free trade" dogmas. So, on and on, it went.

The struggles between the patriotic and American Tory traditions within the "establishment," became a Manichean accommodation between the two. The form of this accommodation became what is recognized as "American pragmatism" today. The distinction between the patriots and the liberals persists, but the habits of pragmatic accommodation to bargains struck with the increasingly powerful liberals, led to a behavioral modification in the beliefs of the patriotic currents. Only a few among the patriots, chiefly dwindling survivors of generations born prior to World War I, have a clear recollection of the principles which used to motivate our patriots' faction inside and outside the establishment.

The most significant of the pragmatic accommodations reached in this way, were on matters of political-economy and constitutional law. The truth-principle of natural law, which was once our national pride, is virtually non-existent in the practice of all three branches of government today; the liberals, especially since the Fabian Society's choice of our Chief Justice, Oliver Wendell Holmes, have imposed Savigny's "historicist" school of irrationalist law, and savagely eroded the notions of justice earlier associated with the Bill of Rights. In



political-economy, Adam Smith is widely accepted among the modern heirs of the patriotic faction, as well as among the liberals.

Thus, no doubt, Ronald Reagan wished to be a leader of the patriotic cause, but his economics were those of the Tory, rentier faction, and that has proven to be his undoing. Some anguished patriots search for the one and only conspiracy which might explain all the evils we do to ourselves. They miss the point; the conspiracy is the followers of Adam Smith, those American Tories' descendants, the liberals in America who follow Smith as much in his immoral doctrines of irrational hedonism as in his political-economic recipes.

For almost a hundred years, what has been taught as "economics" in all our leading universities, has been a hodgepodge of rentier political-economy, a blend of Smith, Bentham, Marx, and John Stuart Mill, lately mixed up with implicitly fascist varieties of utility-theory imported from the decadent Vienna circle with whom Bolshevik N. Bukharin studied his economics.

All modern economic dogmas of this sort begin their study of economic processes with the circulation of money through buying, selling, and usury. This is, in fact, the case for the doctrine of "exchange value" of that sometime asset of Palmerston's British secret intelligence, Karl Marx. The processes of production are then explained from the standpoint of the circulation of money.

Therefore, for all who believe that popularly taught nonsense, the present financial collapse means that the deepest and most prolonged economic depression in modern history will begin, inevitably, no later than 1989. The reasoning is simplistic: Since tens of trillions of dollars of paper values will be wiped out by the successive crashes over the coming months, there will be no lending power, no fund of money in circulation sufficient to promote a revival of production through trade. Hence, an economic depression is seen as inevitable, a very deep and prolonged one.

Out of that sort of misguided thinking comes the rapidly increasing revival of the popularity of Nazi Finance Minister Hjalmar Schacht among the advisers to presidential candidates such as Sen. Robert Dole and the bipartisan ideologues of the National Endowment for Democracy, the latter the mother organization for Lt.-Col. Oliver North's "Project Democracy."

Since prolonged depression, and bitter austerity are inevitable, they argue, the American population has the options of accepting that austerity either from a fascist tyrant, or by "democratic" reforms in the fascist systems of Mussolini and of Dollfuss's Austria. Instead of having economic sacrifices and sacrifices of liberties dictated by a tyrant, the population will

be allowed to select which economic benefits, which liberties it is least unwilling to give up in the current round of ever-deeper austerity cuts.

This was made by the social-democratic Keynesian, the late Prof. Abba Lerner. In the course of a 1971 debate with me, at Queens College, I accused Lerner of proposing Schachtian policies. Cornered, he conceded this was true. He admitted, to the astonishment of faculty and students who had admired him as a paragon of social-democratic liberalism, that he was a supporter of the pre-Hitler Schacht's policies—e.g., the savage austerity policies of the Brüning government, which paved the way for Schacht's placing Hitler into power.

Lerner defended himself by arguing that had the social-democrats accepted Schacht's austerity policies, the choice of Hitler would have been unnecessary.

Lerner exemplifies the arguments of the “democratic fascists” of today, the policies professed by Senator Dole in one recent public address, the policies practiced by the bipartisan National Endowment for Democracy and Project Democracy in the Philippines, Central and South America, and all other parts of the world reached currently by its funding and its pro-active programs.

The point being stressed here, is that the belief in the fatal necessity of a deep and prolonged economic depression, following a deep financial collapse, is the heart of the argument for one or another sort of fascist experiment. Fortunately, the economics taught at universities is scientifically, and practically absurd.

In reality, a financial collapse, under present circumstances, is more or less indispensable if conditions for an immediate economic recovery are to be secured! With all the temporary pain this financial collapse will impose, it is at the same time a blessing in disguise. Without this financial crisis, it is unlikely that the past 20 years' downslide of the economy could have been reversed.

Economy does not start with barter and money; it starts with production. In classes and publications to the same purpose, I have often used the following illustration, which serves to shorten the needed amount of discussion here.

Let us accept, for purposes of argument, the anthropologists' insistence that the original form of society was what they usually term a “simple hunting and gathering society.” Some years ago, calculations were made. Under wilderness conditions, a “hunting and gathering society” would require an average of 10 square kilometers of land-area to sustain an average human life; a total living human population not in excess of about 10 million individuals. They would be very miserable specimens, with life-expectancies for surviving infants substantially

less than 20 years of age, living in small bands whose conditions of material and cultural life were akin to those of baboons.

Today, the human potential population-density is about 1,000 times—three orders of magnitude—greater than such a primitive society. If we add the factors of improved per capita living-standards available with full use of existing technologies, and the average amount of energy consumed per capita and per square kilometer, the improvement in potential population-density is several orders of magnitude still greater than raw population-potential suggests.

This advancement in the human condition has been accomplished through what we term retrospectively scientific and technological progress. We willfully change our mode of behavior, as society and as individuals, to reflect our improved knowledge of the lawful ordering of the universe, and advance the human condition in this way.

The raw measure of economic progress is such forms of increase of the potential population-density. We measure, in first approximation, the absolute increase; we also measure the rate of such increase, and the rate of change in such rates of increase. This measurement provides economic science an absolute scale of measurement of economic progress, without any need to measure economic value in terms of money or barter.

There are those, today, who oppose continued scientific and technological progress, of course. Their views are, at best, insane, and most dangerously so. A lessening of the rate of scientific and technological progress would cause a drop in the potential population-density of mankind. This would take the form of famines, epidemics, and other accelerations of the death-rate, causing a global genocide beyond the imagination of nearly all. Over the span of one to two generations, a continuation of the past 20 years' drift into "zero-technological growth" would mean an acceleration of the death-rate totaling literally billions of people, in a total amount sufficient to bring the total population of this planet down to somewhere between 1 and 2 billion.

Under such high rates of mortality, even in the rapidly mutating "AIDS" infection did not already exist, the rate of development and evolution of combined all and new epidemic diseases might mean the extinction of the human species. Teaching "environmentalist" hostility to technological progress in schools is worse than indoctrinating youth to dedicate their lives to mass murder. Of the two, malthusianism is a much more efficient mass-killer.

If we foster high rates of technological progress, in a capital-intensive and energy-intensive mode, the rates of physical output per capita and per square kilometer can be increased rapidly on a global scale today. We have the available labor to accomplish this. We lack

adequate productive capacity, but we can build it. We lack adequate education of the labor-force, but we can overcome that, too. We need only the right policy of economic development.

The practical issue posed to the U.S. government is: Suppose that the existing financial system's ability to provide credit goes almost flat, can we organize an expansion of technologically progressive employment and capital investment in increase of per-capita rates of physical output? Yes! How? By resorting to a provision of our federal Constitution employed by President George Washington to lift our young federal republic out of virtual national bankruptcy into growing prosperity. The President has but to submit to the Congress a series of emergency bills, authorizing the issuance of trillions of U.S. Treasury currency-notes, as lending-power of our banking system, over the next two or three years.

The trick in lending government Treasury-notes as currency, is to restrict the application of those funds as loans in such a way that for every dollar loaned, on the average, significantly more than one dollar's worth of physical output is continuously generated. As long as the rate of increase of the flow of physical wealth exceeds the rate of increase of money put into circulation, government can lend at very low borrowing-costs indefinitely, up to the capacity of the labor-force and entrepreneurs to absorb the investment financed in this way.

At the same time, the federal government must use its sovereign powers over regulation of banking, finance, generally, and interstate and foreign commerce, to put the collapsing old monetary system into financial reorganization, while the new monetary system, based on large lending-issues of federal Treasury currency-notes, builds up the economy.

Ask yourself: How did the hyphenated word, "political-economy," come into usage? Simply, economy signifies essentially "physical economy," the production, physical distribution, and consumption of physical output, and of certain essential classes of services, such as direct production management, science and engineering services, education, and health-care services. By political-economy, we mean the effect of superimposing the political power of the state upon the economy. This latter includes the creation of money as legal tender, the system of taxation and government expenditures, the regulating of banking and other financial practices, and the regulation of domestic and foreign exchange and commerce. The two, combined, are political-economy.

The "political" aspect of political-economy is something superimposed upon economy. The question is implicitly posed, whether the superimposed political mechanisms are healthful for the economy, or not. For example, if the superimposed mechanisms promote increase in average physical productivity through application of scientific and technological progress to relatively high rates of capital improvements in basic economic infrastructure, and relatively

high rates of investment in production of physical output in a capital-intensive, energy-intensive mode, the superimposed political mechanisms are acting as we should desire them to do. If the contrary, then we should either reform the political superstructure extensively, or scrap the existing financial system entirely, and use the power of the government to create a more suitable, new financial system.

So, in studying the performance of political-economies, we must conduct a twofold analysis. We must examine the financial system on the one side, and the economy on the other, and must then examine the way in which the two distinct processes are interacting. This is what the university-trained economists failed to do, partly because they had not the slightest notion of how to do it, but, more generally, because their miseducation had conditioned them to oppose even the suggestion of undertaking such studies.

This was not the case during the first hundred years of our republic's existence. Relative to economists such as Benjamin Franklin, Alexander Hamilton, Mathew Carey, Friedrich List, and Henry C. Carey, our leading economists today are illiterate grammar-school drop-outs.

### ***Physical Economy***

I shall identify as much of the bare essentials of the science of physical economy as is indispensable for understanding how a properly designed U.S. economic-recovery program will work.

#### DEFINITION OF *ECONOMIC VALUE*:

The primary measure of successful economic growth is *rate of increase of the potential population-density* of the society as a whole. We must measure this as the present potential population-density, the present rate of increase of that potential, and the rate of increase of that rate of increase. This yields *rate of increase of the rate of increase of potential population-density* as the measure of *economic value* in physical economy. *Economic value*, defined in this way, is a synonym for Leibniz's *productive powers of labor*.

Any different measure of *economic value*, such as those of David Ricardo, Karl Marx, and "utility" dogmas, is absurd.

#### HOW MATHEMATICAL FUNCTIONS ARE DEFINED:

Changes in *economic value* are defined by a mathematical form of a function in Riemannian synthetic geometry. This function is broadly defined, in first approximation, in terms of six constraints. (These constraints can be combined, but only in ways which are technically

beyond the scope of most readers.) In order to simplify the discussion, I add a seventh constraint here.

**1. The added constraint: overhead burden.** In the analysis of the physical economy of a capitalist economy, political considerations compel economic analysis to divide physical capital improvements in productive capacity into two general types: capital improvements in what we term *basic economic infrastructure* and capital improvements in agro-industrial capacity for physical output. This is required, in large part, because, in a sound economy, capital improvements in basic economic infrastructure are the economic function of either governmental agencies or governmentally-regulated, privately-owned utilities.

The employment of the totality of the available labor-force is analyzed as composed of the following principal elements of cost: *employment of operatives*, those directly employed in production of physical output or of physical improvements of, or maintenance of capital improvements of infrastructure or production capacity; *overhead expense* such as unemployment, or employment in administration, finance, sales, and services. The first category, *operatives*, is classed as *productive*, other employment, as well as unemployment, is classed as *non-productive*.

*Overhead expense* categories of employment are analyzed as composed of the following principal sub-categories: *economic*, *institutional*, and *waste*.

*Economic* signifies functions which have a direct effect on increasing or maintaining the productive powers of labor of operatives. This includes, most prominently, *direct production management* (or analogous management of physical functions of basic economic infrastructure), *physical science and engineering services*, *classical*, *pre-scientific*, *scientific*, and *technological education*, and *essential medical and related health services*. The requirement of increased employment in these economic categories as a whole increases as the productive powers of labor are increased, but more slowly than the rise in productive powers.

*Institutional* overhead employment includes essential functions of administration, finance, sales, military, police, and other classes of services. These make no intrinsic sort of explicit contribution to increasing the productive powers of labor, but are of a type which society requires for other than productive reasons.

*Waste* includes unemployment, and activities which are either criminal, immoral, or simply irrelevant to the well-being of society.

The constraint to be applied, is that *waste* must be eliminated to the degree possible, and *institutional* forms of employment should be restricted to the minimum required—thus taking into account the requirements of warfare, for example.

The relevant observation is, that in 1946 the employment of operatives represented about 60% of the total labor-force, whereas today it is in the vicinity of 20%. Most of the rise in employment for overhead-expense categories, from about 40% to about 80%, over this 40 years, is entirely wasteful and inflationary, to the point that the magnitude of the increase in percentage is now a dangerous cancer on the body of the economy.

The target for employment of operatives in the U.S. economy, to be achieved over the course of the 1990s, is not less than 40% of the total labor-force, not including operatives, together with scientists, engineers, and professional technicians, employed in a category of “research and development,” which latter should rise to about 10% of the total labor-force.

This broadly defines the nature of the constraint we introduce here as supplementary to the basic six.

**2. Per-capita market-basket.** In Leibniz’s first paper on economic science, his 1672 *Economy and Society*, he summarizes the point that the quality of the per capita market-basket of households’ consumption must increase in some correspondence to the increase of the productive powers of labor. This is the first of the six general constraints.

**3. Energy-density.** The quantity of usable energy consumed per capita and per square kilometer must increase. This is expressed as kilowatts per per-capita unit of population-density.

**4. Energy-flux density.** This is crudely measured as kilowatts per square centimeter of the target-area of a production process or equivalent application. It is illustrated by the history of increasing operating temperatures of metallurgical production, and the correlation of this with rising efficiency and per capita productivity in those industries. Riemannian physics enables us to supply a more rigorous generalization, which we need not explain here.

**5. Rural to urban ratio of employment of operatives.** As technology and productivity advance together, the percentage of the total labor-force required for rural occupations declines, and the percentage of employment of urban operatives increases. This is capital-intensity in the first approximation.

**6. Urban capital-intensity.** Increase in average productivity of operatives is accomplished through increasing the percentage of urban operatives employed in capital-goods categories such as machine-tool occupations.

**7. Technology.** The level of technology must be advanced. The term “technology” is used here in the sense first specified by Leibniz. In physics terms, it is measured in terms of Leibniz’s Principle of Least Action, and can be made more or less fully intelligible for measurement by means of the synthetic geometry of the Riemannian complex domain. It is sufficient for the moment to report that it is intrinsically measurable.

#### INFRASTRUCTURE:

Most policy-shapers today express a savagely incompetent view of the function of capital improvements in basic economic infrastructure. Compare, briefly, the energy-density data for the U.S.A., Federal Republic of (West) Germany, Japan, and India, at the beginning of the 1970s.

During that period, the levels of technology and productivity in the three industrialized countries were approximately the same. We see that the relative amount of energy required per capita declines with increase of the population-density. We see that the requirement is comparable per per-capita unit of population-density.

Simply, to conduct agro-industrial production in an area, the per capita requirement for energy is significantly a function of the land-area in which the production occurs. The more land-area of infrastructure which must be developed per capita of output-activity, the greater the investment in infrastructure per capita. Japan has the highest density of infrastructure development, the U.S. relatively the lowest. The expenditures for improvements and maintenance of infrastructure are naturally reflected as a correlative of energy-consumption by infrastructure. This is responsible for the correlation shown.

It should be the common sense of the modern agro-industrial age, that the development of the agro-industrial production-site, and of the other infrastructure required to support production on that site, is a directly essential to the production accomplished there as capital improvements in the form of buildings, plant facilities, equipment, and machinery. It should be easy to see without further explanation, that infrastructural investments are a major component of the total capital improvements required per capita for production.

I have included the case of India, to demonstrate the absurdity of blaming developing nations for low average productivity, when the infrastructural basis to support agro-industrial development is an order or magnitude or so below the energy-consumption per per-capita unit of population-density prevailing in the industrialized nations.

There is an acute shortage of high flux-density energy production in the United States, a similar problem in Western Europe, and an acute shortage of high flux-density energy



generation and distribution in the developing sector as a whole. Had our policy-shapers not been, in effect, virtual idiots, we would have built up tens of thousands of gigawatts of nuclear-fission generation around the planet during the 1960s and 1970s—most of which would have paid for itself by today. This would have forced us to push through more rapid development of controlled thermonuclear fusion as mankind's principal energy source during the next century.

We are suffering, in the United States, an acute and dangerous shortage of competently managed fresh water supplies. Our once-prosperous aircraft industry is near to falling out of the skies, out of obsolescence and a "cost-cutting" reduction in levels of maintenance. We could have developed and installed high-speed magnetic-levitation "railway" systems, at modal passenger speeds of about 300 miles per hour, in densely populated corridors, with vast savings in costs to the economy.

Most of this might have been built with aid of idled capacity, and with employment of a larger percentage of the labor-force as operatives. Over the medium to long term, such programs would have cost the economy less than nothing.

A certain amount of unemployment, perhaps about 2%, attributable to inter-job migration, is healthy; otherwise, unemployment is a pure waste of the labor-force, and also an outright expense to the economy. A significant percentage of the labor-force employed as low-paid, unskilled "fast-food" or kindred service labor, is effectively disguised unemployment, a net waste to the national economy.

On the subject of the past 20 years' patterns of shift in the composition of employment of the labor-force, toward low-paid employment, we can be much harsher.

Today, to maintain a 1967 or better standard of market-basket consumption per capita for a skilled operative's household, a family household (two parents plus two to four young dependents) requires a pre-tax income of approximately \$40,000 annually or more for a single wage-earner. At a lower level of income, that household is of economically impaired quality; it is unable to meet adequate child-rearing standards, or to make an adequate level of contribution to support of the community's essential activities.

To go more deeply into this matter bears on some relatively sophisticated economic demography, and thus a digression from the subject of this report. The point to be stressed by aid of this reference, is simply that the level of quality of employment of the average member of the labor-force has a "break-even point," relative to any existing level of population-density and desired rate of growth of productivity at that level. A lower average quality of employment, in the first degree, lowers the potential rate of advance of

productivity; a still-lower average quality, in the second degree, pushes the economy into the direction of negative growth.

In other words, a certain average physical output per capita, for the labor-force as a whole, and a correlated average household market-basket standard must be met to sustain growth.

During the past 20 years, clearly during the past 15 years or more, the U.S. economy has been in a phase of negative real economic growth. We have been burning up earlier decades' accumulated capital improvements in infrastructure, and in agricultural and industrial potential. In an analogous way, we have been burning up labor-force potential carried over from households, educational and cultural investments in persons during earlier decades.

Thus, a significant improvement in the composition of percentages of employment, in terms of the categories of productive and non-productive classification outlined above, toward larger percentages of operatives and *economic* overhead classifications, would have represented a shift from negative, to positive growth. This would mean today, a shift of unemployed into employment, principally, as operatives; it would also mean much reduction in employment for low-paid services such as "fast food" employment, for productive employment.

At a current level of operatives' employment, of about 20% of the labor-force, an increase of the operatives' percentage by about 5% of the total would signify an approximately 25% increase in total national output, plus a transfer of the relevant reduction of overhead expense into a productive cost.

Since the capital-goods costs of the infrastructure-building program we have indicated would have represented an allotment of increased employment of operatives and engineers, principally, to supplying that requirement, that infrastructure-building could have been accomplished with the margin of "found money" inherent in the shift of composition of employment of the total labor-force.

As indicated, in conducting such economic analyses, we ignore money-prices at the outset; we limit ourselves to per capita and per hectare market-baskets of physical output, and ratios of categories of allotment of percentages of the labor-force as a whole. We determine costs and incomes in these, real terms, ignoring money-prices.

To convert this into money-prices, we take the following steps. We assign a money-price to the total content of a standard quality of per capita market-basket of households' goods. This is a standard consistent with Leibniz's observation in his 1672 *Society and Economy*. the market-basket for a skilled operatives' household with a number of dependents consistent with a determined net rate of expansion of the labor-force-aged population (e.g., 18–65

years) of that or better quality of productivity for future generations. This money-price of the households' market-basket so determined has, for that interval of time, a unit-value.

By assigning a money-price to this unit-value, an excellent estimation of price for all products and *economic* services is calculated by extension. The required extension treats a national economy as analogous to a consolidated agro-industrial enterprise. The level of market-baskets of both households' and producers' goods required to maintain the equipotentiality of current capacity per capita for the society as a whole, is budgetable as "required levels of cost and expense." The amount of market-basket-equivalent output in excess of this budgeted cost and expense, is gross operating profit. After deductions for uses other than investment in growth of productivity and capacity, we have the economy's net operating profit.

By applying such a real analysis of the physical economy as an overlay on existing patterns of flow of output and money, we are able to examine the current patterns in the economy from a rational, objective standpoint. Any discrepancies between what the real analysis indicates ought to be optimal, and current patterns of flow, must be justified by further analysis, or labeled dysfunctional.

So, by diverting from dysfunctional flows, into building essential basic economic infrastructure, during the recent 20 years, we would have the infrastructure we require today, and the total cost of infrastructure would not have represented any additional margin of cost relative to the costs actually incurred during this period. Whenever we convert dysfunctional allotments to the "found money" of productive investments, there is no added real cost to the economy for the added investments so effected.

Conversely, by reducing investments in infrastructure, by purchasing agricultural products below their true cost of production, by collapsing entire tracts of basic industry, successively, and by transferring the corresponding allotments of the total labor-force to non-economic overhead expense categories, such as low-paid services, we have been systematically impoverishing and destroying our national economy in order to increase, temporarily nominal financial income.

The shift in allotment to this effect has been accomplished by increasing borrowing costs while employing "free trade" as a weapon for lowering prices of U.S.-produced output below the level of the real costs incurred.

By "real costs incurred," one should signify the costs, including capital maintenance and improvements, required to maintain the competitive level of technology and operatives'

productivity at equal and better levels than today, while maintaining or expanding the scale of output. Prices effectively below that level cause negative growth in that sector.

So, for sake of what is supposedly cheap labor abroad, we have collapsed entire sectors of U.S. agriculture and industry, to make the U.S. economy increasingly imports-dependent. Then, we damn those exporting nations, on whose output we have caused ourselves to depend, as being “unfair.” We blame other nations for what we have done to ourselves, and insist, by an arbitrary standard of “free trade” practices, that they do more thoroughly to themselves the destructive things we have done to ourselves.

Investments in capital improvements in infrastructure is the factor which correlates most nearly exactly with resulting increases in productivity. This assumes, of course, the levels of general investment which obtained over the 1946–66 period; otherwise, the potential benefit of capital improvements in infrastructure is not realized.

Infrastructural improvements slowed down over the period 1966–70, with the growth leveling off during 1970, and falling since 1970. To restore the basic economic infrastructure of the U.S.A. to 1970 levels of repair, would require an investment of approximately \$4 trillion today. In addition, it is fair to estimate that a margin worth today about \$2 trillion of investment should have been added, above 1970 levels of quality, over the past 20 years. Relative to required levels of economic recovery, for employment of an operatives' level of employment of about 45 million persons in the year A.D. 2000, at competitive levels of technology and productivity, we require the equivalent, in 1986 prices, of about \$6 trillion investment in basic economic infrastructure during the coming dozen years.

As a result of productivity increases of about 5% or more per year, average, over the coming dozen years, this investment will cost much less than the equivalent of \$6 trillion today. Large-scale infrastructural development means the opportunity for serial production of large portions of the elements to be installed, meaning a large cost-saving relative to methods which might be projected otherwise today. Even so, we are indicating about \$300–\$400 billion a year for the total list of such items as fresh-water management and related improvements, general transportation, generation and distribution of high flux-density energy supplies, and so forth. This is chiefly an enterprise of both federal, state, and local agencies, and privately-owned public utilities.

The objective is to use low-cost federal credit, channeled chiefly through Federal Reserve and private banks, to apply the “found money” principle outlined above to the development of national basic economic infrastructure. Excepting the large expansion of health-care facilities required by the AIDS pandemic, the largest investments will be, in order of estimated rank: energy production, water management, general transportation, and urban infrastructure.

In terms of scale of impact, this infrastructure-building, based upon low-cost credit in volumes averaging about \$300–\$400 billion annually, will be the chief motor of general economic stabilization and recovery over the coming four to five years, and a major continuing factor for the remainder of the century.

At the same time, the infrastructure-building boom inside the United States—and we may presume Western Europe as well—will accelerate improvements in technology in this sector of the world's economy. U.S. exports of related engineering services and critical components of capital goods will be a large component of increased volumes of exports to the developing sector. This will be a large component of a boom in the world's production of energy-capacity and general transportation.

#### CAPITAL-INTENSITY:

The increase in levels of income, through shifts in composition of employment of the labor-force, will require some expansion of production of agro-industrial households' goods, and expansion of educational and health-care services. However, the largest and growing component of added employment of operatives will be in work-places upstream from the output of households' goods.

The possibility of technological improvements' increase of the productive powers of labor depends, as the listed constraints indicate, on growing capital-intensity of employment of operatives, and that in an energy-intense mode.

This means, over the medium to long term, that employment of operatives in production of households' goods will rise to an upper limit, as a percentage of employment of operatives. When that upper limit has been reached, increased households' goods requirements will be supplied entirely out of increases in the general productivity of operatives. Then, the percentage of operatives employed so will decline, while the net per capita output of households' goods increases.

This does not mean a significant reduction in the total employment of operatives. Over the long term, there will be some reduction in the total percentage of operatives employed, through shifts into scientific and engineering employment, but if we combine the totals for production and related employment of operatives with employment in research and development, there will be a long-term growth in U.S. employment in these combined sectors. Within the ranks of operatives' percentiles, there will be a long-term, continuing shift from employment in households' goods output into upstream work-places in capital goods and other producers' goods, with strong emphasis on the machine-tool sector.

Under a regime of continuing technological progress, the substitution of relatively more capital-intense for relatively labor-intense modes of production means a significant average lowering of the net costs of unit-output. That is the only means by which long-term rises in productivity are achieved.

My approach to supplying the technological progress at the rates which rising capital-intensity implies, is to use a 40-year Moon-Mars colonization project as the continuous "science driver" for technological progress in the civilian sector of the economy.

The transfer of science to productive technology occurs generally in the following way.

In a well-organized university physics department, the university maintains a specialist machine-tool shop for the production of experimental apparatus. The amount allotted for this is budgeted annually, in terms of a fixed number of personnel and their equipment, machinery, materials, and so forth. The physics department allots the use of this machine-tool capacity to members of the department, by authorizing members of the department to proceed with the construction of experimental apparatus. (The bureaucratic business of paperwork-strewn processing of applications for grants for conduct of an experiment, is inherently wasteful and is destructive of scientific and related progress. A unit-budget for the machine-tool capacity of the physics department annually, is sufficient, and very efficient budgetary control, whereas unit-grant paperwork as cost-control is bureaucratic lunacy.)

If a physicist conducts a successful crucial experiment, for example, this creates the possibility of producing some sort of functioning apparatus which applies the tested principle. Beyond the physics department's laboratory prototype, the next step is to introduce the new discovery to the machine-tool sector of industry generally. By building the technology associated with this new principle into the capacity of performance of the machine-tool sector, the use of the new principle is made generally available to industry.

My proposal is to use the Moon-Mars program to drive the U.S. research and development sector up to about 10% of the total employment of the labor-force over the course of the 1990s.

By assigning the Moon-Mars specific kinds of objects to develop, such as the near-term step of a Mach 7–8 scramjet to carry rockets capable of reaching low Earth orbit, for example, we directly engage the machine-tool sector of U.S. industry in the most advanced aerospace technologies of this sort, including the capacity to produce generally the new kinds of materials the scram jet-rocket configuration requires.

The importance of choosing the Moon-Mars mission-assignment as a universal science driver for the economy as a whole, is that the mission requires us to make coordinated application of every development generated along a line defined by what are today the active frontiers of scientific and technological progress. This means, that there is no technology which we might be able to devise in any way, over the coming two generations, which would not be generated as a by-product of such a Moon-Mars mission-assignment.

By coordinating such research and development through aid of a Moon-Mars mission-assignment, we ensure that aerospace-related prototypes cause the translation of progress into machine-tool capacity at the most rapid rate feasible. This means that U.S. industry generally has available the most advanced technology possible at the most rapid rate possible.

Under those arrangements, on condition that low-cost credit and investment tax-credit incentives are used to promote this, the entire Moon-Mars program costs the U.S. less than nothing. The gains in productivity effected through the technology spin-offs will be several times or more greater than the entire cost of the program itself.

Today, the largest energy-generating units are in the order of about 1 billion watts (gigawatts), at an energy-flux density of about 40,000 kilowatts per square meter. In the development of the second generation of fusion power, a goal to be reached about 20 to 25 years ahead, we must aim at units a 1,000 times or more larger in output-capacity than today's largest, and at operating energy-flux densities more than 10 times the best of today's.

Continuously powered manned flight between the orbits of Earth and Mars will require such capacity.

At the same time, the universal tool for space exploration and colonization uses what are termed the "self-focusing" characteristics of coherent electromagnetic radiation. This enables us, with high-powered modes of coherent electromagnetic radiation to reach enormous energy-flux densities on targeted materials. With proper tuning of these coherent beams to the periodic harmonic structure of materials, we can disintegrate materials, and effect controlled physical reactions otherwise virtually impossible. The laser machine-tool industry of today is the opening wedge into a new technology, in which all present notions of limited "natural resources" are blasted out of existence.

These developments in high-energy physics are "genetically" related to new developments in optical biophysics. Today's AIDS pandemic begs us to proceed full-steam with a nonlinear electromagnetic spectroscopic mapping of the process of mitosis, by aid of which we may hope to acquire the knowledge to dig the infection out of the chromosomes of the infected victim. Otherwise, these developments in optical biophysics constitute a revolution in

biology which may prove to be integral to the greatest scientific revolution in human existence. Space technology requires this.

We need new types of computers and related control devices. A digital "parallel-processing" module in the gigaflop range would be a boon for many important applications, in addition to essential space applications. More sophisticated will be new species of analog-digital hybrids whose analog components effect explicit solutions to nonlinear functions.

In summary, if we drive with sufficient determination along these pathways, we have clearly in view the potential to increase the effective productivity of operatives by a factor of 10 during the course of the coming two generations.

#### MATHEMATICAL ECONOMICS:

I have described the general constraints of the physical economic function, and have indicated some applications of those constraints, as guidelines, to practical matters of policy-shaping and economic analysis. I have not described the function itself. Although that involves matters way beyond the training of nearly all readers, ethics demands that no part of the policy of the United States should be concealed, or mystified as the silly notion of the "invisible hand" does that.

If the reader does not follow the brief discussion of this matter, the reader may skip over the section, and proceed to the next. The purpose is to register the points here, so that nothing essential is hidden from those who might wish to challenge certain implications of the foregoing argument.

Science is a product of the creative processes of the human mind. As I have explained the essentials of this in published locations, the nature of these creative processes, as they are manifest in valid fundamental scientific discoveries, or in classical musical composition, or classical painting in the tradition of Leonardo da Vinci and Raphael, is capable of intelligible representation of the sort we associate with geometrical representation, although not in a deductive way.

The investigation of the representable characteristics of creative thinking proves a crucial point bearing directly on the mathematical representation of physical-economic processes. These processes are a special sort of nonlinear process, which define mental-creative "space" as having an embedded "curvature," in the same sense that the physics of Carl Gauss, Bernhard Riemann, *et al.*, define a specific curvature for physical space-time. It happens, that the "curvature" of creative-mental space, astrophysical space, subatomic space, and what optical biophysics shows us to be the curvature of biological space are the same curvature.



In other words, there is a geometrical correspondence among the curvatures of creative-mental, astrophysical, microphysical, and biophysical processes. The fact that such a correspondence is proven to exist, is proof of the possibility of validity of human scientific knowledge. In other words, by means of the creative mental processes, as these are typified by methods of valid fundamental scientific discovery, there is nothing within the universe which is not, implicitly, potentially intelligible for mankind.

This standpoint makes possible the ranking of technologies. Comparing the scientific assumptions underlying one technology with those underlying a predecessor, we are able to measure the degree of advancement of the one over the other. We are also able to show the practical effect of such technologies upon production, in thermodynamical terms of reference. This permits us to correlate the technology constraint with the energy-density and energy-flux density constraints, and thus to define a synthetic analytical function (implicitly Riemannian in form) for the set of constraints I have indicated here.

Even for the case the precise values of such a measurement of technology are not provided, an understanding of the general nature of this function permits us to make shrewd estimates of the general orders of benefits in productivity to be expected. Good estimates of that sort are more than adequate for the guidance of economic policy-shaping today.

### ***The Issues of Statecraft***

Thus, we have economic solutions immediately before us, which, if we assume they will be applied, should fill us with optimism about the future of our nation and civilization generally. The physical feasibility of these solutions is beyond reasonable doubt; the remaining issue, is their political feasibility.

*EIR* and this author admit that we are very uneasy about the future of the United States and of civilization generally. With Moscow preparing to move for a strategic showdown as early as 1991–92, and given the vigor of the trends which have persisted in the West over the recent 20 years, we must concede that it appears that U.S. policy is likely to continue in the present direction, under a new government as bad, or perhaps even worse than the governments elected over the recent two decades. If all those things are probable, as they appear probable today, then the United States as we have known it is doomed to an early end, and civilization in general with it.

Yet, despite these terrible appearances, we think that the people of the United States, at least the majority of them, are too good, in the final analysis, either to deserve such a miserable fate, or to allow themselves to continue to be dragged down in such a direction. We think that there is a sleeping potency for goodness embedded in the majority of the U.S. citizenry,

a capacity to rise above the self-damning tendencies for that slavish “other-directedness” which seems to have shaped popular behavior increasingly during the past two decades. It is our belief that such a quality of goodness lies waiting to be drawn upon in our people, which prompts us to be optimistic about the future.

Now, as to the political feasibility of the array of emergency actions indicated earlier.

First, these measures are consistent with the general notions of natural law reflected in our Declaration of Independence and the Preamble of our federal Constitution. What we propose must be done, is fully consistent with that law, whereas those recent trends in policy which we propose to terminate, are not.

Second, as the relevant content of Article I of our federal Constitution emphasizes this most clearly, the composition of our federal republic was premised upon what President George Washington’s Treasury Secretary, Alexander Hamilton, presented as reports to the first Congress of the United States on the subjects of national credit, a national bank, and manufactures. Thus, the measures proposed have such constitutional authority in law, whereas those measures we propose be superseded do not.

Third, the approach we propose is a just one, consistent with the distribution of economic justice according to the principle of the sacredness of the individual person, and the fostering of that spirit of enterprise which is most beneficial to all. The majority of our citizens can not object to an arrangement of revived entrepreneurial agro-industrial capitalism which affords the optimum opportunity to all.

Fourth, for reasons we have outlined summarily, the program of economic recovery is a feasible one.

The effective difference is a moral one. We propose that henceforth the economic and related policies of the United States must be attuned to a proper standard of performance. That standard is the increase of the potential population-density of mankind, with increased opportunities for self-development and useful contributions by every individual, and a constant trend of improvement in the material conditions of life consistent with greater emphasis on those creative-mental potentialities which set mankind above the “zero-technological growth” prevalent among all lower beasts and more debased forms of human society.

Is the end of our sovereign republic to be a Greek tragedy, or is the crisis which now grips us ever more tightly and painfully, merely a signal that we, having reached a *punctum saliens*, are forced to come to our senses, and mend our ways?

We choose optimism. No other course of action would be a useful one; all efforts flowing from a different motive would be contemptibly useless ones.