# THE BEST-KEPT SECRET IN WASHINGTON

**Brain Food -- Third Quarter, 1999**

**by Jay Hanson -- www.dieoff.org**



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> **WHATEVER THE TWISTS AND TURNS** in global politics, whatever the ebb of imperial power and the flow of national pride, one trend in the decades following World War II progressed in a straight and rapidly ascending line -- the consumption of oil. If it can be said, in the abstract, that the sun energized the planet, it was oil that now powered its human population, both in its familiar forms as fuel and in the proliferation of new petrochemical products. Oil emerged triumphant, the undisputed King, a monarch garbed in a dazzling array of plastics. He was generous to his loyal subjects, sharing his wealth to, and even beyond, the point of waste. His reign was a time of confidence, of growth, of expansion, of astonishing economic performance. His largesse transformed his kingdom, ushering in a new drive-in civilization. It was the Age of Hydrocarbon Man.
> -- Daniel Yergin, 1992. 1

> What if tomorrow Palestinian leader Yasir Arafat met with representatives from each of the 19 Muslim petroleum-exporting countries and proposed an entirely new organization called the "Alliance of Muslim Petroleum Exporting Nations" -- "AMPEC" for short?
> -- Richard Duncan, 1997 letter to President Clinton. 2

The genius of our so-called democracy lies in its stability and predictability. James Madison (1751-1836) is known as "the father of the U.S. Constitution". 3 Madison's primary political concern centered on the maintenance of social stability by the political and social control of competing factions; control by government itself was a secondary consideration. With those objectives in mind, the framers crafted an elaborate political system:

- Where "first object of government" (highest priority) was "the faculties" of acquiring property. 4
- Where the struggle of classes and passions (e.g., religious conflict) was replaced with the struggle of interests in the economic sphere.
- Where the political system was extremely resistant to change.
- Where political power was reserved for a white male minority while projecting the illusion of self-government to the majority. Madison scholar Richard K. Matthews explains:

> "By consciously denying virtually all but a handful of citizens any role in a governmental structure that, by design, was to be run by an elite of superior ability (who nonetheless would have to check and balance each other), Madison left [economic struggle] as the prime avenue for humanity to search for meaning." 5

Nowadays, the terms "democracy" and "market economy" are often used interchangeably. Political decisions in a market economy are stunningly simple: one dollar, one vote. In short, the market economy serves as a stealth political system to foster rational thought, universal values based on calculation, and world peace based on self-interest. The market economy succeeds because it satisfies our hunter/gatherer genetic drives for dominance, sex, food, and material possessions.

One hundred years ago, fundamentally defective economic theories led to two world wars with millions killed. Today, the same defective economic theories are taught to students all over the world and are leading to a new generation of world wars with billions killed.

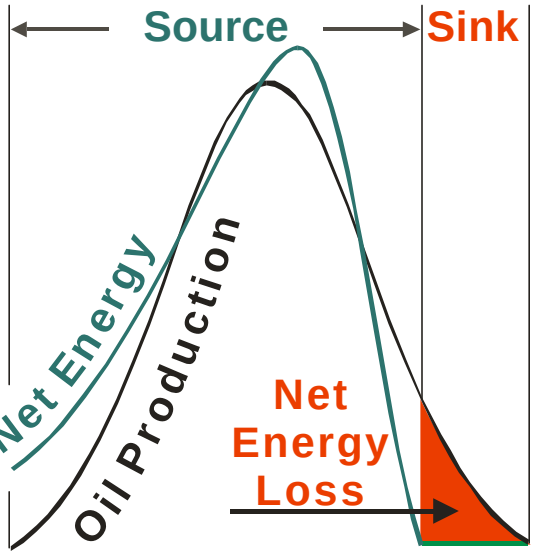
America will soon lose the stability the framers worked so hard to create because it is becoming wholly dependent upon inherently unstable (authoritarian) oil-producing Muslim nations like Indonesia. It

happened twenty-five years ago when OPEC quadrupled world oil prices and plunged America into "stagflation". Fortunately, the non-OPEC producers still had a HUGE unexploited oil cushion to fall back on and simply pumped central bankers out of their economic crisis.

But that was 1973 and this is 1999 -- twenty-five years later the oil cushion is gone. Muslim nations will soon control virtually all of the world's oil exports. Since neither capital nor labor can create energy, the next round of energy-shortage-induced stagflation will leave central bankers helpless and they will seek military solutions to their economic problems.

It's the best-kept secret in Washington, Whitehall, Brussels, and Jerusalem, but it's just a matter of time until word hits the street…

## ENERGY SOURCES




After p. 186, Energy and Resource Quality
Hall, Cleveland, and Kaufmann, 1992



By definition, energy "sources" must produce more energy than they consume, otherwise they are called "sinks".

The market economy burns energy to make money -- there is no substitute for energy. Although the economy treats energy just like any other resource, it's not like any other resource. Available energy is the precondition for all resources -- including energy resources.

The key to understanding energy issues is to look at the "energy price" of energy. Energy "sources" that consume more energy than they produce are called "sinks" and are worthless as sources of energy. This thermodynamic law applies no matter how high the "money price" of energy goes.

The market economy receives almost 80 percent of its energy subsidies from nonrenewable fossil sources: oil, gas, and coal. They are called "nonrenewable" because, for all practical purposes, they're not being made any more. The reason they are called "fossil" is because they were "produced" by nature from dead plants and animals over several hundred million years.

In the 1950s, oil producers discovered about fifty barrels of oil for every barrel invested in drilling and pumping. Today, the figure is only about five for one. Sometime around 2005, that figure will become one for one. In other words, even if the price of oil reaches $500 a barrel, it wouldn't make energy sense to look for new oil in the United States after 2005 because it would consume more energy than it would recover.

The increasing energy cost of oil sets up a positive feedback loop: since oil is used directly or indirectly in everything, as the energy costs of oil increase, the energy costs of everything else increase too -- including other forms of energy. For example, oil provides about 50% of the fuel used in coal extraction.[7]

Immutable energy laws tell us that a growing economy must eventually consume more energy than it can buy. When America spends more-than-one unit of energy to produce enough goods and services to buy one unit of energy, it will be physically impossible to cover the overhead (money is irrelevant). At that point, America's economic machine is "out of gas". Forever!

## EUR OIL

For many years, geologists and petroleum engineers have published estimates of how much oil can be recovered from any given basin. This is known as "Estimated Ultimately Recoverable" (or EUR) oil. Remarkably, estimates of total worldwide EUR oil have varied little over the past half century! 8

Forty years ago, geologist M. King Hubbert developed a method for projecting future oil production and predicted that oil production in the lower 48 states would peak about 1970. This prediction has proved to be remarkably accurate. Both total and peak yields have risen slightly compared to Hubbert's original estimate, but the timing of the peak and the general downward trend of production were correct. Hubbert showed that oil production begins to peak and starts to decline when approximately half of the EUR oil has been recovered.

IHS Energy Group (formerly Petroconsultants) is the world's leading provider of data and analysis for oil exploration and production. The company maintains its headquarters at a custom-built communications center in Geneva. It also has offices in London, Houston, Calgary, Sydney, Perth, Singapore and Hong Kong and a global information network. The backbone of the company is a staff of 300, embracing numerous nationalities, cultures and professions, specializing in petroleum geology, geophysics, petroleum engineering, economics, political science, petroleum legislation, cartography, computer science and information technology. 9

In 1995, Petroconsultants published a report for oil industry insiders ($32,000 per copy) titled WORLD OIL SUPPLY 1930-2050 which concluded that world oil production could peak as soon as the year 2000 and decline to half that level by 2025. Large and permanent increases in oil prices are predicted after the year 2000. 10

## NO OIL? NO ECONOMY!

> If one considers the last one hundred years of the U.S. experience, fuel use and economic output are highly correlated... Energy quality is by far the dominant factor.
> -- Cleveland, Costanza, Hall, and Kaufmann (Science 225: 890-897)

One of the most important aspects of energy is its "quality". Different kinds of fuel have different qualities. For example, coal contains more energy per pound than wood, which makes coal more efficient to store and transport than wood. Oil has a higher energy content per unit weight and burns at a higher temperature than coal; it is easier to transport, and can be used in internal combustion engines. A diesel locomotive uses only one-fifth the energy of a coal-powered steam engine to pull the same train.

Oil is the highest quality energy we use, making up about 38 percent of the world energy supply. No other energy source equals oil's intrinsic qualities of extractability, transportability, versatility and cost. The qualities that enabled oil to take over from coal as the front-line energy source in the industrialized world in the middle of this century are as relevant today as they were then. Oil's many advantages provide 1.3 to 2.45 times more economic value per kilocalorie than coal. 11

Studies show that nothing can replace oil: "A recent review of the future prospects of all alternatives has been published. The summary conclusion reached is that there is no known complete substitute for petroleum in its many and varied uses."12 For example, when the oil's gone, food production will drop to a fraction of today's numbers: "If the fertilizers, partial irrigation [in part provided by oil energy], and pesticides were withdrawn, corn yields, for example, would drop from 130 bushels per acre to about 30 bushels." 13

## RICHARD DUNCAN: IT'S THE EXPORTS, STUPID!

In 1997, Richard Duncan developed a new model to forecast oil production called the NUMERATE-EMPIRIC MODEL.14 In the course of his research, Duncan discovered that Muslim nations would soon

control market economies because they will control virtually all of the oil export market. In a 1997 letter to President Clinton and Senator Jessie Helms, Duncan warned:

> "What if tomorrow Palestinian leader Yasir Arafat met with representatives from each of the 19 Muslim petroleum exporting countries and proposed an entirely new organization called the 'Alliance of Muslim Petroleum Exporting Nations' -- 'AMPEC' for short?
>
> "This proposal alone could cause World stock markets to fall 50% in one day. And crucially, it could ignite both (1) a World Petroleum War, and (2) a World Holy War (called a 'Jihad' by Muslims). I view an 'AMPEC shock' as looming likely because powerful Muslim forces are pushing Mr. Arafat (and others) further every day."

Senator Helms replied that America's oil dependence had become a threat to national security: "The Commerce Department recently released a report which found that U.S. dependence on foreign oil has become a threat to national security. The government should not have allowed its national security to be placed in such a vulnerable position."

*...President Clinton was apparently too busy to reply...*

Duncan is certainly right! Who can forget the headlines of 1979: "Shah flees Iran ... Ayatollah Khomeini returns from exile ... 63 Americans taken hostage in Iran ... many states initiate gas rationing programs ... ABC begins nightly report with 'The Iran Crisis: America Held Hostage' ... OPEC oil price increase tops 50 percent ..."

Although the names and faces will change, we will certainly see a rerun of 1979 because all Muslim countries are "authoritarian" political systems and therefore, inherently unstable:

> "Only a handful of the more than four dozen predominantly Muslim countries have made significant strides toward establishing democratic systems. Among this handful -- including Albania, Bangladesh, Jordan, Kyrgyzstan, Lebanon, Mali, Pakistan, and Turkey -- not one has yet achieved full, stable, or secure democracy. And the largest single regional bloc holding out against the global trend toward political pluralism comprises the Muslim countries of the Middle East and North Africa." 15

## OIL EXPORT POTENTIAL

A nation's oil "export potential" is determined by subtracting its oil consumption from its oil production. For example, in 1998 Saudi Arabia produced 9,230 Kb/day and consumed 1,240 Kb/day. Thus, the Saudi export potential is 7,999 Kb/day. (No other country is even close to the Saudi's export potential!) We can make a very rough estimate of Muslim exports by considering the exports of Muslim regions for 1998, as follows:

| Region | Percent of World |
|---|---|
| Middle East | 46% |
| North Africa | 7% |
| West Africa | 8% |
| FSU Caspian, Indonesia and Malaysia | 10% |
| **Est. 1998 Muslim** | **71%** |

Most Muslim oil-exporting nations are experiencing serious cash flow problems and social unrest (e.g., Saudi Arabia) because of the failing "oil welfare" approach they've taken with their citizens. However, these nations have a HUGE "savings account" in the form of oil reserves. The Middle East alone has 64 percent of the world's proved oil reserves. Add to that 9 percent (i.e., the FSU Muslim republics, 1.7 percent; Muslim African nations, 6.7 percent; Indonesia, Malaysia, and Brunei, 1 percent) and the

Muslim nations have roughly 73 percent of the total world's proved oil reserves. (See BP Amoco 1999. Of note: The data is from the oil industry itself.) Now that's money in the oily bank account, and the Muslims hold the checkbook. It's just a matter of time until domestic unrest forces Muslim nations to coordinate their efforts and solve their cash flow problems for decades to come.

By 2010, Muslim nations could control 60 percent of the world's oil production and, more importantly, 95 percent of the world's oil exports. In short, the Muslim exporting nations have Western economies by the throat.

## THAT GIANT SUCKING SOUND

**http://www.bpamoco.com/worldenergy**

The United States is physically unable to produce enough oil domestically to keep its economy alive and is forced to rely on imports. In 1998, the United States imported 53 percent of its oil needs. This deficit is growing -- and will continue to grow until the economy collapses exactly like it did twenty-five years ago. What's utterly amazing is that even though these data are available for everyone to see on the BP Amoco web site -- and in every major library for non-surfers -- there's nobody in the Oval Office who seems to know how to search the web (or the library)? Even our "environmentalist VP" -- who claims to have "invented" the Internet -- is apparently unable (or unwilling) to access BP's database.

## THE LAWS

> The human species may be seen as having evolved in the service of entropy, and it cannot be expected to outlast the dense accumulations of energy that have helped define its niche. Human beings like to believe they are in control of their destiny, but when the history of life on Earth is seen in perspective, the evolution of *Homo sapiens* is merely a transient episode that acts to redress the planet's energy balance.
>
> – David Price. 16

The first law of thermodynamics (conservation law) states that there can be no creation of matter/energy. The German physicist Helmholtz and the British physicist Lord Kelvin had explained the principle by the middle of the 19th century. The second law (entropy law) states that spontaneous processes will increase the disorder (or entropy) of a system; concentrations of matter tend to disperse, structure tends to disappear, and order becomes disorder. Moreover, all physical processes reduce the total available energy.

In 1824, the French physicist N. L. S. Carnot formulated the second law's concepts while working on "heat engines". 17 Lord Kelvin and the German physicist Clausius eventually formalized Carnot's concepts as the second law of thermodynamics. Most chemical engineering, all power plant engineering, internal combustion engineering, air-conditioning, and low-temperature physics are a few of the fields that owe their theoretical basis to thermodynamics.

*Available energy is the prerequisite for any economic activity. For example, lifting 15 kg of rock 5 meters out of the ground requires 735 joules of energy just to overcome gravity -- and the higher the lift, the greater the minimum energy requirements.18 The second law of thermodynamics places absolute limits the efficiency of the heat engines that power the global economy. 19 A typical auto, bulldozer, truck, or power plant wastes more than 50 percent of the energy contained in its fuel!*

By a hundred years ago, physics had incorporated the laws of thermodynamics. Obviously, energy laws that govern the physical world also govern the economic world. Physical scientists attempted to point out this crucial fact to economists:

"It is, in fact, the fate of all kinds of energy of position to be ultimately converted into energy of motion. The former may be compared to money in a bank, or capital, the latter to money which we are in the act of spending ... If we pursue the analogy a step further, we shall see that the great capitalist is respected because he has the disposal of a great quantity of energy; and that whether he be nobleman or sovereign, or a general in command, he is powerful only from having something which enables him to make use of the services of others. When a man of wealth pays a labouring man to work for him, he is in truth converting so much of his energy of position into actual energy...The world of mechanism is not a manufactory, in which energy is created, but rather a mart, into which we may bring energy of one kind and change or barter it for an equivalent of another kind, that suits us better -- but if we come with nothing in hand, with nothing we will most assuredly return." [Balfour Stewart, 1883] 20

But economists never understood the laws of thermodynamics because they evolved to worship the Market God instead.

## THE MARKET GOD

No discipline [ except economics ] attempts to make the world act as it thinks the world should act. But of course what *Homo sapiens* does and what *Homo economicus* should do are often quite different. That, however, does not make the basic model wrong, as it would in every other discipline. It just means that actions must be taken to bend *Homo sapiens* into conformity with Homo economicus. So, instead of adjusting theory to reality, reality is adjusted to theory.
-- Lester Thurow. 21

The human mind evolved to believe in gods... Acceptance of the supernatural conveyed a great advantage throughout prehistory, when the brain was evolving. Thus it is in sharp contrast to [science] which was developed as a product of the modern age and is not underwritten by genetic algorithms.
-- E.O. Wilson. 22

A zoologist from Outer Space would immediately classify us as just a third species of chimpanzee, along with pygmy chimp of Zaire and the common chimp of the rest of tropical Africa. Molecular genetic studies of the last half-dozen years have shown that we continue to share over 98 percent of our genetic program with the other two chimps.
-- Jared Diamond. 23

Genes are simply chemicals that direct the combination of more chemicals. Edward Tatum and George Wells Beadle investigated the transmission of hereditary characteristics of genes and proved that particular genes are responsible for particular enzymes, and therefore all biochemical processes are regulated by genes. For their work on genetics, they shared the 1958 Nobel Prize in physiology or medicine with Joshua Lederberg. For over 400 years, we've known that genes drive behavior:

"Dogs provide a dramatic yet familiar example of genetic variability within species. Despite their great variability in size and physical appearance, they are all members of the same species. Dogs also illustrate within-species genetic effects on behavior. Although physical differences are most obvious, dogs have been bred for centuries as much for their behavior as for their looks. In 1576, the earliest English-language book on dogs classified breeds primarily on the basis of behavior. For example, terriers (from terra, which is Latin for "earth") were bred to creep into burrows to drive out small animals. Another book, published in 1686, described the behavior for which spaniels were originally selected. They were bred to creep up on birds and then spring to frighten the birds into the hunter's net. With the advent of the shotgun, different spaniels were bred to point rather than to spring. The author of the 1686 work was especially interested in temperament: 'Spaniels by Nature are very loveing, surpassing all other Creatures, for in Heat and Cold, Wet and Dry, Day and Night, they will not forsake their Master'.

> "Behavioral classification of dogs continues today. Sheepdogs herd, retrievers retrieve, trackers track, and pointers point with minimal training. Breeds also differ strikingly in intelligence and in temperamental traits such as emotionality, activity, and aggressiveness. The selection process can be quite fine tuned. For example, in France, where dogs are used chiefly for farm work, there are 17 breeds of shepherd and stock dogs specializing in aspects of this work. In England, dogs have been bred primarily for hunting, and there are 26 recognized breeds of hunting dogs. Dogs are not unusual in their genetic diversity, although they are unusual in the extent to which different breeds have been intentionally bred to accentuate genetic differences." 24

Animal behavior can be deduced by careful observation and explained by evolution theory. By carefully observing terriers, we can deduce that they were selected to creep into burrows. By carefully observing people, we can deduce they were selected to believe in virtually anything:

> "Precisely what we believe is immaterial; what matters is the kind of behavior it generates. This is why humanity is characterized by such astonishing diversity in its belief systems. As far as our genes are concerned, we can believe that the universe is driven by an overweight fairy on a green cheese bicycle provided that such belief effectively coerces us into adopting genetically advantageous behavior in all matters of evolutionary consequence, such as feeding, mating, nurturing, bonding, and protecting family, tribe, and territory." 25

Even though scientists pointed out over a hundred years ago that energy -- not money -- was the source of the capitalists' wealth, economists just didn't have the genes to give up their beliefs and face the real world. *In other words, two million years of evolution produced an animal that was ideally suited to worship the Market God.* 26

Adam Smith *believed* that God's divine plan was revealed in a free market: "the divine being ... contrived and conducted the immense machine of the universe, so as at all times to produce the greatest possible quantity of happiness." Economic historian Deborah Redman explains: "Because the order of nature is providential, the free market that reflects natural order also reflects the workings of providence. In this way the spheres of morality, theology, jurisprudence, and economics become hostages to nature, so to speak." 27

The first commandment of the Market God (as revealed by Adam Smith): "Every man, as long as he does not violate the laws of justice, is left perfectly free to pursue his own interests in his own way, and to bring both his industry and capital into competition with those of any other man, or order of men."

The economists didn't have the genes to understand the physics they were struggling to impersonate:

> "[ With the development of modern physics ] it became possible to see orthodox economic theory for what it really was: a bowdlerized imitation of nineteenth-century physics…It was not the methods of science that were appropriated by the early neoclassicals as it was the appearances of science, for the early neoclassicals possessed a singularly inept understanding of the physics they so admired… [ Neoclassical economists attempt ] to reduce all social institutions such as money, property rights, and the market itself to epiphenomena of individual constrained optimization calculation. All these attempts have failed, despite their supposed dependence upon mathematical rigor, because they always inadvertently assume what they aim to deduce… Conservation principles are the key to the understanding of a mathematical formulation of any phenomenon, and it has been there that the neoclassicals have been woefully negligent." 28

> "Once one gets the scorecard straight, then it will become apparent that twentieth-century neoclassical theory resembles nothing so much as the child's game of Mr. Potatohead -- the fun comes in mixing and matching components with little or no concern for the coherence of the final profile." 29

Had economists evolved to understand the first and second laws of thermodynamics, they would have realized it was just a matter of time until global society entered a period of chronic energy shortage. Since neither capital nor labor can create energy, central bankers will soon have no way to manipulate the economy:

> "Increases or decreases in the level of money supply are thought to influence the level of production in the economy. However, this is true only if the 'externals' to the economy -- i.e., sources of energy from outside of the money circle -- are constant. When the availability of energy changes, the economy changes in ways not correctable by manipulations of the money supply." 30

If central bankers try to stimulate the economy under conditions of chronic energy shortage, they will create "stagflation" instead:

> "High inflation rates can be explained by the linkages between fuel use and money supply. If the money supply is increased, stimulating demand beyond levels that can be satisfied by existing fuel supplies, then prices will rise. This implies that when the costs of obtaining fuel are high, fiscal and monetary policies may not be successful in stimulating economic growth." 31

The next round of energy-shortage-induced stagflation will leave central bankers helpless and they will seek military solutions to their economic problems. This certainly isn't the first time that faith in the Market God has led to military solutions.

## SAME BELIEF = SAME RESULT

> The true nature of the highly artificial economic organization on which peace rested becomes of utmost significance to the historian.
> -- Karl Polanyi

> In late 1973 the first OPEC oil shock struck, as oil prices quadrupled and the general inflation indexes shot up to 11 percent. More important, gasoline lines appeared. Waiting in line to buy a basic commodity like gasoline is something that no American had ever experienced. Shock and irritation were high, but those lines were like the first small heart attack -- an indication of mortality... What was worse, economists could pose no solution to the energy problem. Influential professionals, such as Milton Friedman, predicted that the oil cartel would quickly fall apart. It didn't.
> -- Lester Thurow. 32

In the 19th century, economist Hermann Gossen proclaimed: "It would only frustrate totally or in part the purpose of the Creator were we to attempt to neutralize [the free market] in total or in part, as is the intention of some moral codes promulgated by men." And he asks with moral indignation: "How can a creature be so arrogant as to frustrate totally or partly the purpose of his creator?" 33 The economists' faith in the Market God led to two world wars and sent millions to their deaths.

No other historian has explained the human suffering caused by failed economic theories as well as Karl Polanyi:

> "The origins of the cataclysm lay in the utopian endeavor of economic liberalism to set up a self-regulating market system." [p. 29]

> "By the fourth quarter of the nineteenth century, world commodity prices were the central reality in the lives of millions of Continental peasants; the repercussions of the London money market were daily noted by businessmen all over the world; and governments discussed plans for the future in light of the situation on the world capital markets. Only a madman would have doubted that the international economic system was the axis of the material existence of the race. Because this system needed peace in order to function, the balance of power was made to serve it. Take this economic system away and the peace interest would disappear from politics." [p. 18]

> "By the end of the seventies the free trade episode (1846-79) was at an end; the actual use of the gold standard by Germany marked the beginnings of an era of protectionism and colonial expansion… the symptoms of the dissolution of the existing forms of world economy -- colonial rivalry and competition for exotic markets -- became acute. The ability of haute finance to avert the spread of wars was diminishing rapidly. For another seven years peace dragged on but it was only a question of time before the dissolution of nineteenth century economic organization would bring the Hundred Years' Peace to a close." [p. 19]

> "The breakdown of the international gold standard was the invisible link between the disintegration of world economy since the turn of the century and the transformation of a whole civilization in the thirties. Unless the vital importance of this factor is realized, it is not possible to see rightly either the mechanism which railroaded Europe to its doom, or the circumstances which accounted for the astounding fact that the forms and contents of a civilization should rest on so precarious foundations.
>
> "The true nature of the international system under which we were living was not realized until it failed. Hardly anyone understood the political function of the international monetary system; the awful suddenness of the transformation thus took the world completely by surprise... To liberal economists the gold standard was purely an economic institution; they refused even to consider it as a part of a social mechanism. Thus it happened that the democratic countries were the last to realize the true nature of the catastrophe and the slowest to counter its effects. Not even when the cataclysm was already upon them did their leaders see that behind the collapse of the international system there stood a long development within the most advanced countries which made that system anachronistic; in other words, the failure of market economy itself still escaped them." [p. 20]
>
> "The transformation came on even more abruptly than is usually realized. World War I and the postwar revolutions still formed part of the nineteenth century. The conflict of 1914-18 merely precipitated and immeasurably aggravated a crisis that it did not create. But the roots of the dilemma could not be discerned at the time…The dissolution of the system of world economy which had been in progress since 1900 was responsible for the political tension that exploded in 1914." [p. 21] 34

Exactly like the economists of one hundred years ago, and despite millions killed in two world wars by their mistakes, economists still worship the Market God. Moreover, economists still haven't changed their inherently defective methodology.

Economists first abstract all commodities to money -- which of course, obliterates all qualitative differences between the commodities themselves, and leaves economists uniquely unqualified to know anything about the commodities they purport to study.

Although economists treat energy just like any other resource, it's not like any other resource. *Available energy is the precondition for all resources -- including more available energy!* Because of their total dependence on the measure of "money", today's most prominent economists are unable to know the difference between "libraries" and "oil":

> "Should we be taking steps to limit the use of these most precious stocks of society's capital so that they will still be available for our grandchildren? … Economists ask, Would future generations benefit more from larger stocks of natural capital such as oil, gas, and coal or from more produced capital such as additional scientists, better laboratories, and libraries linked together by information superhighways? … in the long run, oil and gas are not essential." [Nobel Laureate Paul Samuelson and William Nordhaus] 35

*Talk about an evolutionary cul-de-sac!* The economists' devotion to the Market God coupled with their innate inability to know the difference between libraries and oil will lead to a new generation of wars and send billions to their deaths.

The next cycle of death will begin when the world experiences a severe oil crunch in less than ten years (probably less than five, perhaps much less). The crunch will be triggered by a political upheaval in one or more of the major oil-producing nations, a Muslim backlash against America's friendship with Israel, OPEC reducing production to make more profit, or simply the natural -- and inevitable -- "peak" in global oil production.

Once the crunch is here, it's too late. The global economy will go to hell and rational planning will be replaced by crisis management. *With the oil gone, there is nothing left to work with anyway.*

The coming oil crunch is the best-kept secret in Washington, Whitehall, Brussels, and Jerusalem, but it's just a matter of time until word hits the street…

## TIME MAGAZINE -- January 14, 1974

It looked like a hand grenade, so the Albany, N.Y., station operator played it safe and assumed that it was a hand grenade. He gave the man who was toting it all the gas he wanted. Attendants elsewhere last week faced curses and threats of violence, sometimes backed by suspicious bulges in the pockets of jackets. When a huge bear of a man warned a Springfield, Mass., dealer, "You are going to give me gas or I will kill you," the dealer squeezed his parched pumps to find some. "Better a live coward than a dead hero," he said.

Such incidents were not exactly common last week, but they occurred often enough, especially in the Northeast, to indicate an outbreak of a kind of gasoline madness. The New Year's weekend was the first time that many drivers became really desperate for gas. Many stations ran out of their monthly allotments as the weekend started and closed until they could get new deliveries after the holiday. Those that stayed open backed up long lines of drivers whose tempers sometimes exploded -- especially if they found the pumps dry when they finally got to them.

The gas shortage is sparking other types of deviant behavior. Flouting of the law is on the rise. In New York City, two gasoline tanks trucks, each loaded with 3,000 gallons, were hijacked within a week. Price gouging by station owners has become distressingly common. Miamians complain of having to pay $1 a gallon or being charged a $2 "service fee" before a station attendant will wait on them.

At best, many gas station owners and attendants have become unapproachable to strangers; they will wait only on longtime customers. Some issue window stickers to the regulars; others sell by appointment only. Oregon Governor Tom McCall last week rolled into a Union 76 station only to be told by the manager: "Sorry, Governor, we're only selling to our regular customers."

So the Governor meekly drove to the end of the line at a nearby station that was taking all comers...

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1 **THE PRIZE:** The Epic Quest for Oil, Money, and Power, by Daniel Yergin, Joseph Stanislaw (Contributor); Touchstone, 1993 http://www.amazon.com/exec/obidos/ASIN/0671799320/brainfood.a

2 Richard Duncan's letter to President Clinton is archived at http://dieoff.com/page172.htm

3 James Madison was the fourth President of the United States (1809-1817). A member of the Continental Congress (1780-1783) and the Constitutional Convention (1787), he strongly supported ratification of the Constitution and was a contributor to The Federalist Papers (1787-1788), which argued the effectiveness of the proposed constitution. Madison has been described by political historian Richard K. Matthews as the "ideal Machiavellian Prince", the "father of the Constitution", the "father of the Bill of Rights", the "father of political parties", and the "father of preferred freedoms".

4 p. 79, **IF MEN WERE ANGELS**: James Madison & the Heartless Empire of Reason, by Richard K. Matthews; Kansas, 1995; http://www.amazon.com/exec/obidos/ASIN/0700608079/brianfood.a

5 ibid. p. 84.

6 The net energy curve was found empirically by Hall, Cleveland and Kaufmann working with Louisiana oil and gas wells. A very rough estimate is that the last 5% of production from a field might be at an energy loss (it doesn't say how much loss, the authors stopped computing when net energy reached .5).
Recent research suggests perverse subsidies total about $1.5 trillion per year worldwide. This is twice as large as global military spending each year and three times as much as the international narcotics industry. [ see http://www.websiteworld.co.uk/hot.htm ] Production at financial profit but energy loss is partially due to economic subsidies.

7 p. 314, **GETTING DOWN TO EARTH,** by Robert Costanza et al., Eds.; Island Press, 1996; http://www.amazon.com/exec/obidos/ASIN/1559635037/brainfood.a

8 **OIL AS A FINITE RESOURCE:** When Is Global Production Likely to Peak? by James J. MacKenzie; World Resources Institute, 1996; http://www.wri.org/wri/climate/finitoil/eur-oil.html

9 see http://www.petroconsultants.com

10 **THE DEATH OF THE OIL ECONOMY,** by Ted Trainer; Earth Island Journal, Spring 1997; http://dieoff.com/page116.htm

11 p. 87, **BEYOND OIL,** by John Gever et al., Univ. Pr. Colorado, 1991; http://www.amazon.com/exec/obidos/ASIN/0870812424/brainfood.a

12 **THE POST-PETROLEUM PARADIGM -- AND POPULATION,** by Walter Youngquist; Population and Environment: A Journal of Interdisciplinary Studies Volume 20, Number 4, March 1999; http://www.dieoff.com/page171.htm

13 ibid. Pimentel, D. (1998a).

14 **THE WORLD PETROLEUM LIFE-CYCLE:** Encircling the Production Peak, by Richard Duncan, Institute on Energy and Man, Seattle, WA. 1997; http://dieoff.com/page133.htm

15 **ISLAM AND LIBERAL DEMOCRACY:** Two Visions Of Reformation, by Robin Wright; Journal of Democracy 7.2 (1996) 64-75; http://www.mtholyoke.edu/acad/intrel/rwright.htm

One can make a rough estimate of the stability of Muslim nations by using Freedom House's list of "free" countries as a proxy for democracy, and the following list of Muslim countries:

Algeria, Azerbaijan, Bahrain, Bangladesh, Benin, Brunei, Cameroon, Comoros, Djibouti, Egypt, Gabon, Gambia, Indonesia, Iran, Iraq, Kazakhstan, Kuwait, Lebanon, Libya, Malaysia, Maldives, Morocco, Mozambique, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Somalia, Sudan, Syria, Tunisia, Turkey, UAE, Uzbekistan, Yemen. (Of course, not all were involved in wars.)

In the last thirty years, Muslim countries (which total 37) were involved in roughly 27 wars while "free" countries (which total 88) were involved in about 20 wars (including wars with Muslim countries). http://freedomhouse.org/survey99/country/ http://www.gn.apc.org/peacepledge/wars/war_index.html

16 **ENERGY AND HUMAN EVOLUTION,** by David Price, 1995; http://dieoff.com/page137.htm

17 Internal combustion, steam, or gas turbines are called "heat engines" because they convert fuel into heat, then into mechanical motion.

18 For a vertical lift: joules = meters X kg X 9.8

19 A typical gasoline engine with a compression ratio of 8:1 cannot exceed a theoretical 45 percent efficiency, in practice might be about 35 percent; for a diesel with 20:1 it's 55 percent, 45 percent; for a turbine with 30:1 it's 60 percent, 50 percent.

20 p. 132, **MORE HEAT THAN LIGHT**, by Philip Mirowski; Cambridge, 1989; http://www.amazon.com/exec/obidos/ASIN/0521426898/brainfood.a

21 **DANGEROUS CURRENTS:** The State of Economics, by Lester C. Thurow; Random, 1983; http://www.amazon.com/exec/obidos/ASIN/0394723686/brainfood.a ; http://dieoff.com/page162.htm

22 The Biological Basis of Morality, E.O. Wilson http://www.theatlantic.com/issues/98apr/bio2.htm

23 p. 2, **THE THIRD CHIMPANZEE,** by Jared Diamond; Harperperennial, 1992; http://www.amazon.com/exec/obidos/ASIN/0060984031/brainfood.a

24 pp. 58-59. **BEHAVIORAL GENETICS:** Third Edition, Plomin et al; Freeman, 1997; http://www.amazon.com/exec/obidos/ASIN/0716728249/brainfood.a

25 p. 186, **THE SPIRIT IN THE GENE:** Humanity's Proud Illusion and the Laws of Nature, by Reg Morrison, Lynn Margulis; Cornell, 1999; http://www.amazon.com/exec/obidos/ASIN/0801436516/brainfood.a

26 Scientists search for truth by forming statements that can be tested. If a statement cannot be tested, then it is not "scientific". Testable statements are known as "hypotheses" and take the general form "IF [I do this], THEN [this will occur] ". For example, the hypothesis "IF I drop a rock, THEN it will fall to the ground" it can be tested to see if it is "false".

In 1934, Sir Karl Popper proposed a criterion of testability, or falsifiability, for scientific validity. Scientific theories are hypotheses from which can be deduced statements testable by observation; if the appropriate experimental observations falsify these statements, the hypothesis is refuted. If a hypothesis survives efforts to falsify it, it may be tentatively accepted. No scientific theory, however, can be conclusively established.

Popper's mode of thought -- the habit of attempting to prove oneself wrong -- is the only path to knowledge about the real world.

Evolutionary psychologists have found that humans evolved to naturally use a "falsification strategy" with respect to the social world, but use a "confirmation strategy" with respect to the physical world. Our innate social-world "falsification strategy" causes us to instinctively reject social anomalies and attempt to "falsify" claims about the real world that might jeopardize social beliefs (e.g., the claim that global oil production will "peak" soon).

On the other hand, our innate physical-world "confirmation strategy" allows us to defend social constructions of reality (e.g., the "free market") to the death, even if the ideals they represent are far from physical reality. The most notorious example of this "confirmation strategy" was Julian Simon.

"Consider first a phenomenon I call the deontic effect in human reasoning (Cummins, 1996b, 1996c). Deontic reasoning is reasoning about rights and obligations; that is, reasoning about what one is permitted, obligated, or forbidden to do (Hilpinen, 1981; Manktelow & Over, 1991). Deontic reasoning contrasts with indicative reasoning, which is reasoning about what is true or false. When reasoning about deontic rules (social norms), humans spontaneously adopt a violation-detection strategy: They look for cheaters or rule-breakers. In contrast, when reasoning about the truth status of statements about the world, they spontaneously adopt a confirmation-seeking strategy. This effect is apparent in the reasoning of children as young as three years of age (Cummins, 1996a; Harris & Nuñez, 1996) and has been observed in literally hundreds of experiments on adult reasoning over the course of nearly thirty years, making it one of the most reliable effects in the psychological literature (see Cummins, 1996b, 1996c, and Oaksford & Chapter, 1996 for reviews of this literature)." [pp. 39, 40] **THE EVOLUTION OF MIND,** by Denise D. Cummins (Editor), Colin Allen (Editor), Oxford, 1998 http://www.amazon.com/exec/obidos/ASIN/0195110536/brainfood.a

27 p. 237, **THE RISE OF POLITICAL ECONOMY AS A SCIENCE,** Deborah Redman; MIT, 1997 http://www.amazon.com/exec/obidos/ASIN/0262181797/brainfood.a

28 p. 6, **AGAINST MECHANISM:** Protecting Economics from Science, by Philip Mirowski; Rowman and Littlefield, 1988; http://www.amazon.com/exec/obidos/ASIN/0847676951/brainfood.a

29 p. 294, Mirowski, 1989

30 H.T. Odum in pp. 204-206, **A SURVEY OF ECOLOGICAL ECONOMICS,** Krishnan, Harris, and Goodwin, eds., Island Press, 1995; http://www.amazon.com/exec/obidos/ASIN/1559634111/brainfood.a

31 **SUMMARY OF ENERGY AND THE US ECONOMY:** A Biophysical Perspective by Cutler J. Cleveland, Robert Costanza, Charles A.S. Hall, and Robert Kaufmann; Science 225 (31 August 1984): 890-897. http://dieoff.com/page17.htm#energy

32 **DANGEROUS CURRENTS:** The State of Economics, by Lester C. Thurow; Random, 1983; http://www.amazon.com/exec/obidos/ASIN/0394723686/brainfood.a ; http://dieoff.com/page162.htm

33 p. 45, **HUMANIST ECONOMICS:** The New Challenge, by Mark Lutz and Kenneth Lux; Bootstrap Press, 1988; http://www.amazon.com/exec/obidos/ASIN/0942850068/brainfood.a

34 **THE GREAT TRANSFORMATION,** by Karl Polanyi; Beacon, 1957; http://www.amazon.com/exec/obidos/ASIN/0807056790/brainfood.a

35 *Please read the following quote carefully and try to deduce the nature of the animal:*

"Should we be taking steps to limit the use of these most precious stocks of society's capital so that they will still be available for our grandchildren?

"Economists answer this question in two ways. First, they point out that fossil fuels like oil and gas are finite but not 'essential.' An essential resource is one, like oxygen, for which there are no substitutes. Substitutes exist for all the energy resources. We can substitute coal for oil and gas in most uses; we can liquefy or gasify coal where liquid or gas fuels are needed; when coal runs out, we can use higher-cost solar energy, nuclear fission, and perhaps someday even nuclear fusion. These last three are superabundant in the sense that when we run out of solar energy, the earth will already be uninhabitable.

"A second point concerns the relative productivity of different assets. Many environmentalists argue that energy and other natural resources like wilderness areas and old-growth forests are very special kinds of capital that need to be preserved so that we can maintain "sustainable" economic growth. Economists tend to disagree. They look at natural resources as yet another capital asset that society possesses -- along with fast computers, human capital in an educated work force, and technological knowledge in its patents, scientists, and engineers. Both economists and environmentalists agree that this generation should leave an adequate stock of capital assets for future generations; but economists worry less about the exact form of capital than about its productivity. Economists ask, Would future generations benefit more from larger stocks of natural capital such as oil, gas, and coal or from more produced capital such as additional scientists, better laboratories, and libraries linked together by information superhighways?

"The substitutability of natural capital and other kinds of capital is shown by the production indifference curve or 'isoquant' in Figure 18-2. We show there the amounts of the two kinds of capital that would be required to attain a certain level of output in the future (Q*), holding other inputs constant. That output can be produced at point C with a conservationist policy that emphasizes reducing energy use today, leaving much oil and gas and relatively little human capital for the future. Or it might be produced with a low-energy-price and high-education strategy at B. Either of these is feasible, and the more desirable one would be the one that has a higher consumption both now and in the future.

"Note as well that the isoquant hits the vertical axis at point A, indicating that we can produce future output level Q* with no oil and gas. How is this possible? With the greater scientific and technical knowledge represented by point A, society can develop and introduce substitute technologies like clean coal or solar energy to replace the exhausted oil and gas. The curve hits the axis to indicate that in the long run, oil and gas are not essential." [ p. 328, **ECONOMICS,** Paul Samuelson and William Nordhaus; McGraw-Hill, 1998; http://www.amazon.com/exec/obidos/ASIN/0070579474/brainfood.a