46 Essays
On The Human Condition

A compilation by

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Astrophysics

Nothing is expanding. Everything is condensing.

What we call our universe seems to be expanding. From our perspective, the space between every thing, which, as far as we know is nothing, is expanding at an ever increasing rate, while every thing is being constantly condensed by gravity till it finally ends up in a black hole.

Could it be that the universe we live in is a little backwater along the great river of creation where the flow slows to the speed of light? We can't see into the big bang because it's entering our universe faster than the speed of light? We can't see into a black hole because it's leaving our universe faster than the speed of light?

As the little spec of creation we call our universe decompresses to the speed of light, expanding and condensing until gravity finally sucks it out a black hole on the other side, our planet coalesces in its orbit around the sun and cools. As it cools, a thin crust forms and insulates the surface from the heat within. As it continues to cool, a thin film of water condenses on the surface and begins to leach minerals from the rock beneath. A delicate film of gasses, composed of nitrogen, water vapor, carbon dioxide, sulfur dioxide, argon, chlorine, ammonia, methane, hydrogen, and lesser amounts of other gasses settles above the water. Water vapor begins to condense into clouds, causing the earth's albedo to increase, and the rate of cooling accelerates.

The absence of oxygen in the early atmosphere and oceans allows the formation of amino acids, and the first anaerobic life appears. When temperature and mineral complexity in the oceans permit, carbon, hydrogen, oxygen, nitrogen, and magnesium combine to form chlorophyll which begins to catalyze carbon dioxide, water, and photons into glucose and oxygen. The solar energy transferred to the hydrocarbon bond of glucose creates tension between hydrocarbon and oxygen and the first sparks of aerobic life appear. Oxygen combines with iron and thick beds of iron oxide are laid down. Eventually, when most of the available iron and many other elements are oxidized, atmospheric oxygen levels slowly begin to rise, and aerobic life proliferates. Phytoplankton evolve into zooplankton, and the first animals evolve. Food chains appear. As genetic structures evolve, life becomes increasingly complex. Calcium bonds with carbon to form shell and bone, and the conversion of carbon dioxide and calcium to oxygen and limestone begins.

As the earth cools, the crust thickens and begins to wrinkle. Land appears, and life thrusts up into the carbon rich atmosphere and flourishes. With so much carbon for plant growth and so little oxygen for decay, hydrocarbon piles up deeper and deeper. Where land covered with hydrocarbon subsides it is covered by fresh layers of sediment and eventually turns to coal. Where life in the ocean dies and settles to the bottom, it is covered by limestone and eventually turns to oil and gas.

As the crust continues to cool, mountains begin to rise and erosion begins. Where limestone erodes, carbon is reintroduced into the atmosphere. Where igneous rock erodes, carbon is bound up and removed from the atmosphere. The oceans get deeper and cover less of the surface. Ice begins to form where the tilt of the earth’s axis shades the poles. The earth’s color gradually changes from blue and white to blue, brown, green, and white. The blue oceans absorb solar energy below the blue spectrum and convert the energy to heat, which stratifies and disperses over the surface, then into the atmosphere. On land, the brown rock converts solar radiation to infrared and reradiates it, transferring some of its energy to a variety of atmospheric greenhouse gasses, predominately water vapor. The green chlorophyll absorbs energy into hydrocarbon bonds and stores it until decomposition when it’s released as infrared. The white of clouds, snow

and ice reflect solar radiation relatively unchanged with very little absorption. As temperature differentials in the atmosphere above land, sea, and ice increase, weather becomes more turbulent. As mountains rise, deserts form in their wake. Rivers run down their slopes and build alluvial plains. Swamps give way to forest and the complexity of life expands and adapts.

Modified by fluctuations in the diameter and other physical characteristics of the earth's orbit around the sun, in conjunction with complex fluctuations in albedo, ice begins to periodically scour the emerging continents near the poles.

As our sun orbits around the Milky Way galaxy, it crosses through the mid-plane of the galaxy about every 34 million years, and the spiral arms about every 140 million years. These are areas where sub-atomic particles which seed clouds in the earth's lower atmosphere are thick. Occasional starbursts flood the nearby galaxy with bursts of cosmic particles lasting hundreds of years. The increased albedo of more clouds causes more of the earth's surface to cool and turn increasingly white; chilling the biosphere until we come out the other side or the starburst dissipates.

As the earth's crust cools and thickens, volcanism decreases. Less gasses enter the atmosphere, less minerals dissolve into the ocean. Life begins to remove more carbon from the atmosphere than is replaced by volcanoes. Life in the ocean binds it with calcium and hydrogen, life on land binds it with hydrogen. As oxygen levels rise, hydrocarbon deposition slows as oxidation balances photosynthesis, but life still relentlessly pulls carbon from the atmosphere. As the carbon based greenhouse gasses decrease, the atmosphere cools. The crust is now so thick that volcanism is rare and very little carbon is released. Eventually, almost all of the earth's supply of carbon originally available to the atmosphere has been bound into limestone, coal, oil, and gas. Volcanism and limestone erosion are releasing carbon into the atmosphere about as fast as life on land and in the oceans is removing it. With the exception of a minute amount of peat, almost no hydrocarbon is being deposited. Most of the existing hydrocarbon deposits are covered by limestone and volcanic and alluvial deposits.

As temperatures cool and oxygen levels rise, mammals evolve. Soon it becomes too cool and dry for the dinosaurs and, except for a few smaller ones, they don't recover from a major catastrophe. Forests begin to give way to grasslands. Conditions are favorable for the mammals and they proliferate and diversify. Eventually, genetic mutation amongst the apes evolves a skull configuration that favors a large brain cavity instead of large jaw muscles, and the human species evolves. Humans are not yet at the top of the food chain. What they have to eat and what eats them are often larger than they are. They adapt by developing increasingly complex brains to operate more complex bodies. Complex hands with opposable thumbs with which they can operate more complex tools. Complex tongue neurology for complex language.

As the earth cools, the ice ages lengthen and warm periods shorten. Antarctica becomes a semi-permanent dish of ice. The warm cycles become so short that progressively less of the ice on Greenland melts during the interglacial periods. Eventually, by the time the Arctic Ocean melts, the earth's

orbit is already expanding. In winter, the continents around it are cold enough that the north polar atmospheric vortex inverts, and it begins to snow heavily on the northern landmasses. Glaciers begin to grow even as the rest of the earth's surface briefly continues to warm. As the earth approaches its maximum orbital diameter, the oceans cool and less snow falls, until much of the earth is cold desert. As the earth approaches its minimum orbital diameter, the ice recedes, exposing rich new soil, and life moves back toward the poles.

At the end of the last ice age, as the human species moves northward, edible plants become seasonal and they develop more sophisticated hunting and harvesting tools. Foresight and community become necessary to get through the winter. They learn the uses of wood, stone, fire, and metal. The evolution of tools increases their ability to live longer, healthier lives, and they prosper and multiply. As the temperate landmasses warm, farming evolves and people begin to settle down and store food and tools. They learn to domesticate animals. They invent the plow and learn to store grain and grind flour. Larger numbers of people congregate and the complexity of culture and language increases. With the ability to accumulate more things comes the ability to count. Eventually they invent the zero, giving them the ability to measure. Mathematics evolves, enabling much more complicated tools and machinery. They learn to build boats. They learn the basic arts of navigation and begin to explore the planet.

Then one night in 1707AD, four ships of the British Navy ran aground because their computations of longitude were wrong, so the British royalty put up a large cash prize for an accurate and dependable method of computing longitude, which entails an accurate measurement of time. To build accurate clocks it was necessary to build an accurate lathe, the key to the industrial revolution. With a lathe you can build the engines that harness the solar energy stored in hydrocarbon. The mother of smog is born.

After the billions of years that it took to distill solar energy into coal, oil, and natural gas, all that energy is ripe and ready, and those clever humans have found a way to harvest it. The feeding frenzy begins. The concentrated essence of life, available on demand, and humanity undergoes a metamorphosis in its energy metabolism. Then one day Edison runs an electrical current through a wire in a vacuum, quickly followed by Tesla building an electric power plant at Niagara Falls, and an ever-increasing portion of humanity begins to glow in the dark in yet another metamorphosis of its metabolic rate.

The energy made available by the industrial revolution has so enabled the growth of humanity that it now physically covers a major portion of the earth habitable to land mammals and is actively feeding on most of the rest, pushing aside and often exterminating many of the rest of the world's species.

As it is with feeding frenzies, there's a lot of waste, and when the food runs out there's nothing left but hunger and a whole lot of poop. Now that the humans have devoured the easy half of the earth's hydrocarbons, there's a lot of poop piling up and much of it is toxic, so they bury what they can of it as best they can. Unfortunately, they can't bury smog.

Most of the gasses of smog capture infrared reflected by land and warm the atmosphere. Because greenhouse gasses only operate over land [the oceans reflect very little in the infrared spectrum], there is a substantial temperature differential between air over land and ocean that is variable by season. As the great winds of the earth carry plumes of hot summer air and rivers of cold winter air from land to ocean and warm, moist air from ocean to land, they swirl and gradually blend as evaporation transfers the solar energy stored as heat in the ocean into the atmosphere. Water vapor is the primary greenhouse gas. As the oceans warm, more water vapor enters the atmosphere. As the atmosphere warms, its carrying capacity increases, resulting in an increase in the overall amount of water and energy in the atmosphere.

In a complex interplay of ocean, land, and air compositions and currents, modified and modulated by a variety of factors such as season, dew point, topography, and color, these differentials in temperature, humidity, and albedo generate the world's weather.

The particulate portions of smog cool the earth's liquid and solid surfaces as they shade the sun. Above the dew point, particulates warm the atmosphere by direct absorption of sunlight, and cool the surface by shading it. Below the dew point, particulates substantially cool the surface and lower atmosphere as they

seed a reflective cloud layer. When particulates fall on snow and ice, they melt it by converting sunlight to infrared, substantially increasing the rate of ice and snow melt.

If you've ever been on a summer snowfield, it's easy to see that a major cause of snow and ice melt is not just atmospheric temperature, but opaque particulates of any kind or size, including particulates from coal, diesel, and wood smoke that absorb solar radiation and convert it to infrared, a frequency that snow, ice and greenhouse gasses absorb. The melting glaciers are varying shades of brown and black, not white.

Greenhouse gasses contribute to glacial melt by altering snowfall patterns and not covering dirty snow and ice with fresh reflective, insulating snow, as well as melt by direct conduction from warmer air. The carbon based greenhouse gasses are only part of the many factors that control atmospheric temperature, though they are a major player in the events that have accelerated the earth's climate toward a major tipping point.

In the Southern Hemisphere, until recently, the current warming trend resulted in a modest change in white to blue and brown albedo ratios, but as the atmosphere warms and increasing amounts of particulate smog are deposited on the ice, its melt rate is substantially increasing. The increase in the fresh water of melting shelf ice is lowering the salinity of the southern ocean around Antarctica, causing a decrease in the power of the annual thermohaline pulse that drives the circulation of the world's oceans, causing the deep oceans to warm. Due to increased particulate deposition and warming temperatures of water and air, the duration of the winter sea ice has decreased by about 90 days, resulting in a massive increase in solar gain.

In the Northern Hemisphere, increasing temperatures are resulting in a massive contrast in albedo as the ocean covering the pole melts and turns from a reflective white desert to an absorptive blue ocean almost completely surrounded by the continental land masses of North America, Europe, and Asia. The Arctic Ocean is rapidly warming, but the moisture plume evaporating from the new open ocean is depositing an early snow on the surrounding continents, resulting in an early winter. While the rest of the world is warming, northeastern North America and eastern Siberia are getting substantially colder.

Climate

As we gain awareness of the mechanics of global warming, there has been a great amount of skepticism and denial as to its existence and its causes and effects. This has resulted in an intensely defensive mindset amongst the scientific community. The squabble over proving whether global warming is real or not, proving its many potentials for disaster, proving that it's human caused, or designing ways to stop it, has so distracted us that we've failed to notice that, right under our noses, a fourth northern climate zone is forming over the Arctic Ocean.

If a model of the northern hemisphere is built portraying the Arctic Ocean in absorptive ocean blue instead of reflective snow white, how much solar energy will the Arctic Ocean absorb? How much water will be evaporated? How far south will the water get before it precipitates? In what form, in which seasons, in which storm tracks, will it precipitate? To what extent will the core of the arctic atmospheric vortex invert and establish a fourth northern climate zone as the ocean covering the north pole abruptly changes from white to blue and becomes seasonally warmer than the land surrounding it?

It's becoming increasingly clear how and when the Arctic Ocean will complete its long slow melt since the last ice age. Human-created greenhouse gasses have increased atmospheric temperatures and human-created particulate fallout has increased snow and ice melt, but whether human pollution has substantially accelerated the end game is a moot point. The pertinent point is that the culmination of the end game is an abrupt change in albedo of the Arctic Ocean. As the earth's surface warms, more and more of the earth's surface changes color from reflective white to absorptive blue, green, and brown, causing the Arctic to warm ever faster until the ice pack covering the Arctic Ocean melts and the Arctic Ocean turns blue.

At this point the endothermic phase change of melting ice will no longer absorb heat from the Arctic Ocean. Its temperature will quickly rise, increasing its evaporation rate and decreasing its temperature differential with the rest of the world's oceans. As the last of the old glaciers surrounding the Arctic Ocean disappear, the flow of fresh water that currently forms the northern boundary of the Gulf Stream will soon decrease, but the surface area of water available for the partial desalinization of seasonal sea ice will increase to the size of the Arctic Ocean minus that portion which no longer freezes. The seasonal ice will be centered near the North Pole, and will cause much larger annual pulses of lower density fresh water each spring and higher density salt water each fall, but unlike glacial melt, it won't increase the volume of water, so the fresh water might stay mostly in the Arctic Ocean.

For much of the year the new Arctic Ocean will be warmer than the land that surrounds it, causing the arctic atmosphere to establish a positive vortex. As the Arctic Ocean turns from snow white to ocean blue and absorbs solar energy, most of that energy is transpired to the atmosphere through an evaporation and condensation cycle. Land stores heat for a few days. The oceans store heat for

several months. In the fall, as the sun heads south, a blue Arctic Ocean is still evaporating water into a positive atmospheric vortex long after Canada and Siberia are frozen. As the Arctic Ocean clears, this inversion of the northernmost atmospheric vortex is increasing in size and intensity. As the Arctic Ocean becomes blue instead of white, a fourth northern climate zone is establishing above the earth's new blue ocean, driving the arctic zone southward. We can already see this happening**.**

While the rest of the world is warming, winters from Washington to Maine and from the Alps to China are getting periodically longer and wetter. Winters in the northern temperate zone are ranging further south. The winter freeze goes deep into Florida. We are seeing snow in such unlikely places as Baghdad and New Orleans. In the winter of '07-'08, the northern hemisphere had the most snowfall in memory, resulting in a wide band of reflective snow and cloud cover from about thirty to fifty degrees north latitude, but by March, global snow cover was the least on record as the relatively warm snow quickly succumbed to the warmer air and increased particulate fallout created by human industry. The winter of '09-'10 was much the same, but with a more southerly storm track. Half of the Monarch Butterflies didn't make it through the winter in Mexico. Central Oklahoma didn't see the ground for three months. In Oklahoma, in February 2011, after breaking their record low temperature at 31 below zero, in a week temperatures were in the 70's. For most of the northern temperate zone, the winter of 2010-2011 was long and cold and wet. The great northern basin of Siberia is getting colder as cloud cover shades the ground, an early snow turns the land white, and snowfall in the mountains to the south increases. As the new northern climate zone pushes the arctic zone south, the rest of the world is warming and pushing the tropics north. Most of the land surface in the northern temperate zone is becoming wetter and dryer and hotter and colder, but the average is wetter and rapidly moving toward colder. Winter and summer are getting longer and spring and fall have all but disappeared as the temperature gradient between arctic and tropic air gets steeper. Temperature, humidity, and pressure gradients are becoming more extreme, and weather in the northern hemisphere is becoming correspondingly more extreme. The size and number of tornados is rapidly increasing. In the fall of 2010 Hudson Bay had its latest freeze ever recorded, while the land around it had an early winter. The contrast spawned a large cyclonic storm that was essentially a hurricane that came out of Canada and across the Midwest, leaving a path of white in its wake. In the spring of 2011, the Missouri River didn't crest till late in June. In Washington, they were still skiing on a seven foot base on the Fourth of July. All around the world there's often a lot more snow in the mid to upper latitudes of the northern temperate zone.

Until recently in the southern hemisphere, the corresponding change in albedo was very small in comparison to the northern hemisphere. The southern hemisphere is a mirror image of the northern hemisphere. The northern hemisphere has a soon to be blue ocean at the pole, surrounded by a large multi-continental landmass covering most of the temperate zone. The southern

hemisphere has a white continent at the pole, surrounded by a very large ocean covering most of the temperate zone.

As the oceans warm, the duration of the Antarctic winter sea ice is rapidly decreasing in a self amplifying cycle. The warmer water around Antarctica is resulting in an increase in the strength of the Antarctic katabatic vortex and snowfall on the Antarctic plateau is increasing. Antarctica is currently taking more water out of the ocean in increased snowfall than the melting shelf ice gives back. As the massive ice shelf of Western Antarctica is undermined by warmer water, at some point it will cave in, a large portion of the continent will change from reflective white to absorptive blue, and the warming trend will self amplify. The melting of Western Antarctica, in combination with the decreasing density of warmer water, will cause substantial sea level rise.

As the emerging giants of industry choke on their smog, they’re finding newer and better ways to lower their particulate emissions, but not their greenhouse gas emissions. We are steadily increasing the efficiency of our energy consumption, but we are just as steadily increasing the volume of our energy consumption as fast as we can. We're hardcore energy addicts. In the short term, this should warm the land and ocean surfaces, substantially raising ocean and atmospheric temperatures in the tropics and southern hemisphere, and substantially raising summer temperatures over land in the northern hemisphere, but as we run out of oil and gas, forests to burn, and eventually coal, and civilization crumbles or contracts from lack of fossil and glacial water for irrigation and oil to haul the freight, levels of greenhouse gasses in the atmosphere will decrease. This will result in atmospheric cooling, which, in combination with warm ocean temperatures, should increase cloud cover, mostly in the northern temperate zone. In combination with an increase in northern temperate zone snowfall and decreased snow melt, this should result in a substantial increase in northern hemisphere albedo.

The earth and sun are partially liquid spheres spinning in space. The earth has a solid inner core, a liquid outer core, a thick mantle and a thin crust, no thicker than the shell of an egg. Gravity and centripetal forces tend to separate different densities and molecular structures of matter into layers within these spheres which spin at different speeds. It's the opposing inertias of these layers that generate the magnetic fields of the earth and sun. Variations in the rates of spin between these layers cause variations in the strength of the magnetic fields that they generate.

The magnetic field of the earth, along with our atmosphere, and to a much greater degree the magnetic field and heliosphere of the sun, shelter us from the cosmic rays of interstellar space[mostly protons, some helium nuclei, a few electrons, and a little bit of lithium, beryllium, and boron nuclei]. Most of these cosmic particles form aerosols in the atmosphere which seed a more reflective cloud layer in the lower atmosphere.

The earth's magnetic field is in decline, probably because we're about to experience a magnetic pole reversal. The sun's magnetic field has also been in decline. Sunspot activity on the surface of the sun reached an historical low before the maximum in the sun's 11 year cycle in early 2013. With all the newly

deployed technology we should soon learn a lot more about the climate of the sun. Gathering scientific data is indicating an up two twofold variation in the flux of the solar winds that produce the sun's heliosphere, on timescales of decades to thousands of years. It's the suns heliosphere that deflects most of the cosmic particles around us as we cruise through space.

The interplay between variations in the concentrations of cosmic particles we encounter, variations in the power of the heliosphere, variations in the earth's magnetic field, and variations in the composition of the earths atmosphere modify the cloud cover and hence the albedo of the lower atmosphere, contributing to variations in the albedo of the earth. The little ice ages show a lot of characteristics that would be explained by a sudden immersion in a cloud of cosmic particles as we cruise through the galaxy.

As the residual glaciers of the last ice age melt, and the new glaciers of the new ice age begin to grow, weights on the tectonic plates are changing, causing stresses on their boundaries. This will likely cause increased volcanic activity, substantially increasing global albedo.

It‘s likely that the combination of all these drivers of climate will eventually self-amplify into the next major ice age beginning in the northern hemisphere, but in the meantime it's gonna be hot.

Unless, of course, something else happens.

Ice

The overlay of the ice ages is currently a roughly 100,000 year by several million mile variation in the diameter of the earth's orbit around the sun, modulated and modified by a variety of cycles in the interplay of planetary gravitational fields and occasionally by random events such as close encounters with other bits and pieces of the universe that alter planetary orbits. Over time, as the earth condenses, the ice ages get colder and longer, although they can be modulated and even overridden by fluctuations in cosmic particle concentrations and who knows what else as we cruise through the galaxy.

The temperature changes caused by the variation in proximity to the sun, in conjunction with variations in the earth's albedo, the sun's heliosphere, and our interstellar environment, overlap the temperatures at which water changes from gas to liquid in the atmosphere, and liquid to solid on the surface. The entry and exit thresholds of ice ages are determined by the abrupt color change of water over major portions of the earth; at the dew point in the atmosphere, at zero degrees Celsius on land, and a bit lower on the oceans [dependent on salinity], resulting in rapid changes in albedo.

At the end of the last ice age as the earth drew near the sun and the ice retreated to the poles, large portions of the earth's surface turned from white to blue, brown, and green, substantially lowering the earth's albedo. Now, as the earth begins to move away from the sun, the Arctic Ocean will finally melt and turn from white to blue, thus abruptly decreasing its albedo and quickly warming. This will invert the northernmost atmospheric vortex, transpiring increasing amounts of cloud cover and snow onto the surrounding continents, rapidly increasing the albedo of a large portion of the earth's surface in the northern hemisphere.

The melt rate of the north polar ice cap is accelerating. It could turn completely blue in as little as a decade. The solar energy gain of an ice free Arctic Ocean will be the energy that powers the new weather of the Fourth Northern Climate Zone. The more we learn about the timing and extent of this threshold, the sooner we can begin to plan our strategies for dealing with growing enough to eat as the Arctic Ocean turns blue, the northern lands turn white, and the rest of the world rapidly warms.

Changing Colors

Humans can and do, to a degree, control albedo by altering the color of the earth. For many thousands of years, human intervention through fire, farming, logging, and industry has substantially altered local, regional, and eventually planetary albedo.

The human propensity to burn things results in a substantial increase in atmospheric particulates and greenhouse gasses, which change the color of land, water, ice, and atmosphere. In general, human activity tends to alter the color of the earth, usually resulting in increased conversion of sunlight to heat. The colors of human infrastructure tend to have a lower albedo than the natural environment that they replace.

With the invention of the axe, the world's forests began to recede. With the invention of the chainsaw, the rate of deforestation accelerated manifold. In conjunction with the population explosion of the 20'th century, this has resulted in the consumption of most of the world's forests, with many consequences, such as changes in color, changes in cloud cover, increased carbon dioxide in the atmosphere, and an increased susceptibility to fire which results in lower albedo on land and an increase in carbon particulates in the atmosphere. All of these events result in substantial changes in albedo.

The massive population decline of the indigenous population in North America caused by the introduction of European diseases caused abrupt reforestation and decreased greenhouse gas emissions, changing the color of both land and atmosphere, contributing to the last little ice age.

Before we plowed the Great Plains, the prairie grass would stick up through the snow, convert sunlight to infrared, and quickly melt the snow which was absorbed into a thick sponge of sod. This resulted in a short winter and a long spring. When we plowed the Great Plains, without the grass sticking up, the snow stayed longer, but when it melted, without the sod sponge, it ran off quickly. This resulted in long winters and a short spring. Gradually, as more and more particulate smog was deposited on the snow, it melted faster until we had short winters, short springs, and a whole lot of summer. Now, due to the climate change of the fourth northern climate zone, we're beginning to see longer winters and even less spring and fall.

Throughout the evolution of the industrial revolution, the ratio of carbon to hydrogen in the fuels we burn has steadily decreased [from wood to coal to oil to gas to hydrogen], but as population increases and we find more and more ways to utilize fossil energy, the volume of carbon dioxide in the atmosphere is steadily increasing. As the efficiency of combustion steadily increases, the ratio of greenhouse gasses to particulates in the smog we produce is substantially increasing, resulting in an acceleration of both surface and atmospheric warming. The result has been what is commonly known as global warming, although the warming we're talking about only concerns about one millionth of the mass of the earth in a tiny speck of time, and we really don't know all that much about how and how much.

We have the ability to slow the onset of the extreme climate shifts coming in our immediate future if we pay attention and get to work, but it would just buy time to adapt. If we try to control weather and climate, we'd best be aware that we'll be reacting to a very sketchy view of the past in an attempt to change the future of an extremely complex system about which we know very little. Only a very few people will have sufficient understanding to maybe get it right, while a lot of people will fail to understand that they don't and could easily make a deadly mess of it. Harebrained schemes like releasing sulfur dioxide into the upper atmosphere to reverse global warming could tip us very quickly into drastic cold. We're dancing on the edge and a misstep could be deadly.

Most of the energy that powers the Gulf Stream is generated in the tropics. Because the cold return flow runs into the southern hemisphere till it merges with the Antarctic Bottom Water of the Antarctic Thermohaline Circulation, much of the energy of the Gulf Stream is generated in the southern hemisphere. Because most of the world's oceans are in the southern hemisphere, much of the stratification of solar and geothermal heated water that powers the Gulf Stream happens in the southern oceans. The wind driven gyre of the North Atlantic dictates its course, but the sun and the geothermal heat of the ocean basins are the sources of its power.

As the southern oceans warm and Antarctic shelf ice rapidly melts from underneath, it's forming a lens of fresh water that dilutes and diminishes the Antarctic thermohaline circulation, causing the deep water of the worlds ocean basins to significantly warm. This is building the potential for major changes in global climate. One such change is already evident. As a hurricane gains strength, the increasing wind speed circulates colder water from deeper below the surface. This is a self damping process that controls their size. As the temperature of the deep waters of the world's oceans increases, the size of hurricanes is correspondingly increasing.

Another consequence of warming oceans and more fresh water around Antarctica is a much shorter sea ice season in the Antarctic Ocean. This is a self-amplifying event that further decreases the Antarctic thermohaline circulation and increases the strength of the Gulf Stream as it increases the surface temperature of the Antarctic Ocean. While the extent of the winter sea ice around Antarctica is relatively constant, its duration has decreased by about 90 days. This is resulting in a massive, self amplifying gain in energy absorption by the Antarctic Ocean. This will further amplify the power of the Gulf Stream.

Because the Bering Strait is only 82 kilometers [51 mi] wide and 50 meters [160 ft] deep, its only circulation is a bit of warm surface water flowing from the Pacific to the Arctic Ocean. The Arctic Ocean's connection with the rest of the world's oceans is almost completely through the Atlantic. The Arctic Ocean is the cull de sac of the world's oceans. As the Arctic Ocean becomes free of year round ice, it is developing a new and ever larger annual thermohaline pulse. The Antarctic thermohaline pulse happens in the southern hemispheric fall, the Arctic thermohaline pulse happens in the northern hemispheric fall. I haven't found data yet to understand how these bipolar oscillations interact.

The effects of atmospheric and oceanic warming on sea level rise are currently as much about the expansion of warmer ocean water as about freshwater melt. As the ocean that surrounds Antarctica warms, the energy that powers the Antarctic katabatic vortex is increasing, and snowfall is increasing on the continent to the point where Antarctica is currently gaining mass as snowfall surpasses glacial melt. As the last of the glaciers of the Canadian Archipelago melt, for the moment, Greenland is becoming the only remaining major freshwater inflow into the world's oceans. This will soon change, as it's

becoming clear that the ice shelf of Western Antarctica will soon collapse, causing a very abrupt and substantial sea level rise. The melting of Western Antarctica will also substantially change the configuration of the Antarctic thermohaline pulse.

If storm patterns shift it could only take the new fourth northern climate zone a few years to deposit enough heavy snowfall on Greenland's glaciers to change their color from brown to white and substantially slow their melt rate. If the freshwater barrier that defines the northern boundary of the Gulf Stream is shifted north from the glacial melt of Greenland to the thermohaline pulse of the Arctic Ocean, the northern fingers of the Gulf Stream will bring more warm water and subsequent evaporation and precipitation much farther north.

As we learn the ways of cleaner combustion, we are changing the ratios of greenhouse gasses to particulates in the atmosphere. If we find ways to actually reduce particulates while we continue to produce ever more carbon dioxide, we will decrease the shading effect of particulates and increase the density of greenhouse gasses in the atmosphere. This will increase atmospheric heating over land, increase ocean temperatures and evaporation into the atmosphere, and will increase the flow of warm water that powers the Gulf Stream.

A more powerful Gulf Stream will significantly affect weather throughout the northern hemisphere. As the fourth northern climate zone increases snowfall on the northern temperate land masses, temperature differentials between land and sea will increase. Eastern North America and eastern Siberia will continue to see colder winters and increased snowfall. The weather in northern Europe will continue to become wetter and more turbulent. Thruout the northern hemisphere, record snowfalls will become the norm.

In December of 2015, the air temperature at the North Pole reached +4 degrees Celsius [39 F] instead of a normal of -20 to -30 [-4 to -22 F]. This portends a large increase in the melt rate of the Arctic ice cap.

The increasing contrast in temperature between the land and seas of the Northern Temperate Zone is already increasing the size and intensity of tornadoes throughout the northern temperate zone. Storms are producing more and larger hail. As the contrast increases, spring and fall are rapidly disappearing, with serious effects on agriculture. The increasing damage to human infrastructure is having an ever increasing negative effect on the overall health of the community. This increasing contrast and subsequent increasingly violent weather will continue to increase for many decades or even centuries to come. We need to rethink our priorities and drastically change our approach to where and how we rebuild our infrastructure and grow our food.

Video Globe

We are entering the earth's largest and most abrupt change in albedo since the last ice age, with very rapid shifts in climate, and the human community has yet to see the need to build the tools we need to survive coming changes. We're entering an age of transition from fire into ice. We need to ascertain its timing and dimensions and get to work, but it needs to be work chosen wisely.

There's enough data being gathered to build a fairly comprehensive view of this planet we live on and make it available to the community, but the data is fragmented throughout thousands of separate studies, websites, databases, satellite feeds, surface data gathering sites, historical records… What we don't have is a tool to coalesce the data into a comprehensive view of where, when, how, and why we live. We need a more sophisticated computer to correlate the data. A tool that can enable this new technology is a spherical screen and mouse.

The exploration of space will soon be sidetracked by other priorities. While we still have the energy, there's something of great importance that we need to finish. We all know that the world is round, but our individual perspectives of the world are very small and flat and we act accordingly. As more people and cameras go into orbit, our perspective changes and we learn much more about where we live. The next evolution of this endeavor can be a computer and internet linked video globe capable of a vast array of data translation. A globe of the earth in live video would be a major step toward the human community being aware of its condition. Basic systems are already in place and a few choice carrots would attract the talent to put together a spherical screen, a few more satellites, and the electronics to mesh the systems.

If we had a video globe of the earth upon which we could see the full spectrum of energy absorption and reflection, we could watch the great winds of the earth swirl plumes of moisture off the oceans and plumes of hot air and rivers of cold air off the land together into the turbulent complexities of our weather. We could watch the ocean currents as the sun warms the water and it rises and stratifies, carrying energy toward the poles, gradually releasing it into the atmosphere. We could watch the arctic ice cap continue to recede from the shoreline as the northern-most pulses of the Pacific El Nino currents flow thru the Bering Straight until the last of the rotten ice disappears. We could watch the water that evaporates from the world's new ocean turn the northern temperate land masses into pulsing bands of white that begin to grow the new glaciers of the next ice age. We could see the human species as a complex organism flourishing on the decay of the carboniferous age. We could see ourselves glow in the dark till the feeding frenzy runs its course. We could begin to see ourselves from the perspective of the rest of the universe and beyond.

The potential tangible, serendipitous, and synergistic benefits of a three-dimensional perspective of the earth are widespread throughout the realm of human endeavor. Civilization is a team sport. Time is short, and there's a lot of

work to be done. The higher the percentage of humanity aware of the necessary changes in cultural endeavor that it will take to mitigate our entry into the next age, the better our chances of pulling it off. It may seem a subtle change in perspective, but the difference between seeing the bits and pieces and far away pictures on a flat screen and seeing the earth as a whole in all its complexity and diversity is a fundamental change in consciousness.

In conversation, I find that, once people can visualize a live video globe of the earth sitting on the coffee table, everybody wants one.

Complexity

The innate cleverness of a large, complex brain, in conjunction with an opposable thumb and a linguistic tongue, has given the human species a compulsion for complexity that often gets us into a lot of trouble. Looking back, we find a generally inverse relationship between complexity and efficiency, reliability, and durability.

The complexity of machine design has exponentially increased since the beginning of the industrial revolution, but the designs that endure are generally the simplest ones. In general, the more parts a machine has, the more chances it has to fail, the lower the quality of its individual components, the less chance it has of being fixed, the more energy and resources are consumed in it's manufacture, and the more pollution it creates.

The cultures that endure are not the big civilizations dependent on complexity. Until they were squeezed out by the all-encompassing congestion of the new global civilization, the cultures that endured alongside the rise and fall of many civilizations were those with the simple hand to mouth tribes and extended families that lived just a few weeks from starvation.

The complexity of government tends to steadily increase until governments become so mired in excess verbiage that they become nonfunctional. The current mood of 'throw the bums out' is focused on individual politicians when the problem is that our current system of electing them will just get us more of the same at best. Our electoral system is seldom providing us with wise leadership, and when it occasionally elects someone with some intelligence and practical knowledge, they get swept away in the vast flood of mindless verbiage that surrounds them.

Many human systems become non-functional beyond a certain size or complexity. The goal is not to abandon complexity, but to respect it. We are the most complex creatures to evolve on this earth. It's what defines our place in the hierarchy of life. Used wisely, with caution and constraint, complexity can bring us great wealth and wisdom. Used with reckless abandon, it will bring disaster.

Birth Control

If we don't control population, calamity will. The laws of physics and a multitude of historical precedents make this quite clear. Throughout history, it's been war, famine, and disease that have controlled population. Many people don't understand this, many others accept it as just the way it is, and some of us know that we have the potential to move beyond war, famine, and disease.

While we still have an urgent need to achieve the smaller, stable population necessary for lasting peace and prosperity, current global census data confirms that birth control has, for most of the world, stopped exponential population explosion, and, in much of the world, has actually reversed it. This buys us a little time, but not much.

Birth control is, in the long run, a much less painful alternative than war, famine, and disease, but, in its current form, birth control has an extremely dangerous side effect. Many years ago I came upon a study correlating the introduction of birth control to a subsequent decline in the literacy rate in parts of Africa. Since, at the time the study was done, the literate population was sufficiently well defined for statistical analysis, and the distribution of birth control was, for a number of years, limited to the literate class, a definite correlation could be developed between the introduction of birth control and a one generation later substantial and unprecedented drop in the literate percentage of the population.

Subsequent objective and subjective observation has shown that birth control is slowly, subtly, but fundamentally changing the basic fabric of society by substantially altering the relative birth rates of cultures, subcultures, nationalities, religions, personality types, physical types, levels of education, levels of intelligence, levels of responsibility, and a host of other human characteristics.

Because the increments of change are a generation apart, but number in the billions, it takes a perspective that spans generations and cultures to see the immense power of birth control to change the course of human cultural and genetic evolution.

As humanity enters its third generation of widespread birth control, the hereditary cultural and genetic side effects of birth control are beginning to manifest. We need to know where this is taking us for better and for worse. If intelligent, educated, competent, responsible people are, on average, having fewer children than unintelligent, uneducated, incompetent, irresponsible people, then the cultural and genetic inheritances of intelligence, wisdom, ability, and responsibility are exponentially waning as a percentage of population. We need to get a handle on this before it turns into a long term catastrophe much worse than runaway population. There are obviously many exceptions, but if you look beyond your normal cultural perspective and see the average, not the exception, you'll see it happening now.

Children inherit their genetic background and most of their cultural heritage from their parents. Before the invention of the current commonly used forms of

birth control, intelligent, educated, responsible people still tended to have a bit fewer children than unintelligent, ignorant, irresponsible people, but they tended to raise a higher percentage to adulthood. Survival of the fittest saw to the evolution of the species. This allowed the proliferation of knowledge to gradually increase the overall wisdom of the human community. Birth control has turned all that on its head. The first generation in the age of contemporary birth control are now grandparents if they or their children had any kids. For those who didn't, there individual cultural and genetic heritages are soon to be extinct.

Around the world, birth control has entered the population in a variety of different ways and has had very different effects in different places.

In the US, three generations ago, as birth control became widely available, it was the more intelligent, better educated, more responsible portion of the population who first had access and motivation. Over the next generation, the use of birth control gradually spread into the general population, but not uniformly. The Catholic, Muslim, and Mormon religions were still pushing for as many kids as possible, the religious conservatives tended to look at birth control as something from Satan, and the ignorant, unintelligent, and irresponsible still couldn't figure it out. While there are many exceptions, the overwhelming trend was toward the next generation of Americans becoming less intelligent, less well educated, less rational, and less responsible. The following generation finally saw much more uniform use and these trends tended to stabilize and occasionally reverse.

In China, birth control was generally spread uniformly and effectively throughout the population, and stopped and reversed population increase in one generation, without most of the negative side effects experienced by most of the world. The side effects in China were quite different. One was the disappearance of aunts and uncles. Another was widespread 'only child syndrome'. Nothing brings prosperity like a sudden, indiscriminant drop in population, and China flourished, but, unlike previous population reductions from war, famine, and disease, which tend to leave a more balanced age spread amongst the survivors, birth control only takes the babies. This has created a huge ripple in the labor force.

In much of Africa, the first generation of birth control went almost exclusively to the literate class and resulted in a one generation later substantial drop in the literacy rate. At the end of the first generation of birth control in Zimbabwe, swarms of young blacks ran off the old white farmers. Just about everyone accepted the reasons as racism, but what I saw was a bunch of ignorant, illiterate kids and a few old farmers with just a few children who were off to see the world.

In Europe, the existence of a moderately effective universal health care system caused a more uniform spread of birth control that gradually slowed and eventually reversed population increase without as much of the dumbing down. Europe's current ripple in the labor force has been less abrupt than China's, and the depth of northern Europe's industrial base has substantially cushioned the fall.

In Japan, birth control also spread across the country without as much of the cultural bias seen in places like the U.S. or Africa.

In the Soviet Union, birth control entered the culture at the end of a massive cultural realignment. The First and Second World Wars and the Revolution and Civil War killed off a very large percentage of the brave young men and Stalin killed off a large percentage of the farmers and intellectuals. The Soviet Union entered the age of birth control with a very high percentage of single women, wimps, corrupt men, and a lot of alcohol. While they had a somewhat uniform use of birth control, they started with serious disadvantages.

In the Middle East, birth control has caused major cultural realignment due largely to levels of education and varying interpretations of the Quran. The demographics in the Middle East have substantially shifted toward ignorance and religious fanaticism.

Population control has always been the cure for poverty. It took the Black Death in Europe to bring on the Renaissance. The Black Death was relatively indiscriminant. Contemporary birth control is not. Birth control only takes babies, with a distinct bias toward the eventual extinction of intelligence, literacy and responsibility.

Birth control will be the eventual solution to the poverty beginning to engulf the world. If we don't do it, Mother Nature will, but we've made her job a lot harder with our contemporary de-evolution due to the hereditary selection for lack of intelligence, literacy, and responsibility that our initial attempts at birth control have caused.

As we enter the third generation of contemporary birth control, to understand its impact we need to crunch the numbers. In three generations, the difference between one child and four is 64/1. The difference between one child and ten is 1,000/1. If child rearing begins at 30 instead of 15, the ratios double.

We need to find and enable a new form of birth control that will entice those without the wit, the will, or the wisdom. Cheap, tasty, and mildly addicting would be a good start.

Suicide

I'm starting to meet a lot of couples who have decided not to have children. It's a comfortable choice on a personal level, but on a cultural level, it's a choice of suicide rather than face the hard challenges ahead.

It's the most intelligent and well educated people who best see the potential scope of coming misery, but it's already the lack of a high enough percentage of intelligent, responsible, well educated people in the global community that's the root of most of our problems. If you're smart enough to see the immensity of the mess we've gotten ourselves into, it's easy to call it hopeless and not even try. It's a copout. It's a form of spoiled brat syndrome. A generation has grown up without hard challenges and are lacking the personal and social abilities to deal with hardship. They're so accustomed and addicted to the toys and comforts of the moment, that they've abandoned the future. Unfortunately, the future has become the present and we are already experiencing a number of mass insanities due to increasing human ignorance.

The certainty of coming calamity is nothing new to the human species. Many civilizations have come and gone, but the size and complexity of this civilization is completely unprecedented in human history, and the potential for catastrophe is correspondingly unprecedented. This will be the first collapse of a global civilization.

It's becoming increasingly evident that the unintended culturally and genetically inherited side effects of birth control will be the single greatest catastrophe in all of human history. In the past, intelligent, educated, responsible people had a bit fewer children, but they raised a much higher percentage to adulthood. This resulted in a steady rise in human competency. Contemporary birth control in conjunction with modern technology has reversed this, and the result is fast becoming a tragedy far worse in the long run than population explosion and subsequent collapse. As the percentage of educated, intelligent, responsible people within the global community decreases, our chances of salvaging the remnants of this civilization steadily decrease. Birth control has allowed us to avoid a population explosion that would have already resulted in drastic war, famine, and disease, but we've traded it for a mass extinction of species, an extreme devastation of environment, and a serious degradation of human competency that will eventually result in even more drastic war, famine, and disease, but with a much less intelligent, educated, capable, responsible remnant population to deal with the building of a new civilization.

There is a growing polarity between a vast increase in human awareness and a correspondingly vast increase in the number of people who are aware of almost nothing. It's easy to not notice that, due to a number of factors, the most dominant being the discrimination of birth control and the distraction of idle electronic chatter, fewer and fewer people are knowing more and more, and more and more people are knowing less and less. This is a dangerously slippery slope. We're dancing on the tipping point. Never underestimate the power of ignorant people in large numbers.

Culture

In the past, the evolutions of the basic tenets of culture were determined by the natural environment. In the hot wet tropics, industrious behavior was counter-productive. Complexity decomposed long before its usefulness justified the effort. In the hot dry tropics, austerity was a necessity of survival. Much was durable, but there wasn't much. In the temperate regions, the moderate temperatures enabled heavy physical labor, decomposition was slower, and industriousness became profitable. In the far north, a sense of greater responsibility was necessary to get ready for winter and teamwork became unavoidable. Even the teamwork of man and dog was necessary for survival. As the human species spread across the planet, a wide variety of elaborate cultures evolved to meet the challenges of a multitude of different environments.

As the population density of humanity increased, local environments with the right combinations of topography, climate, resources, and energy developed from the intersection of trails, to the regular meeting places of material and cultural exchange. As our knowledge of the tools of harvest and storage increased, larger and larger concentrations of people became stationary in places with the most opportune sources of energy and resources where they began to create their own environment, eventually evolving into cities. As cities grew to their current size, hundreds of concentrations of millions of people gradually lost access to direct knowledge of the sources of their sustenance. The developing complexities of commerce and industry began to allow members of the community to live their lives in completely man-made environments, with little or no direct involvement in or knowledge of the sources of their food, shelter, transportation, and entertainment, the ways to enable and sustain them, and the consequences of doing so. In parts of some of the largest inner cities, the majority of children and an ever increasing number of adults can't even connect milk with a cow, a loaf of bread to a field of grain, or hot water with a gas well, an oil well, or a coal mine. Lacking the knowledge of the sources and consequences of their food, shelter, tools, and toys, they tend to make decisions in their daily lives that are not conducive to the survival of the human community.

As the industriousness that developed in the temperate regions allows the population to increase, and the complexity of machinery allows faster and longer travel and communication, many different cultures with their different perspectives of what's necessary for survival increasingly intermingle. The multitude of cultures that evolved in the vast complexity and variety of the natural world are rapidly being displaced by the uniform culture of cities and suburbia. Sustained by fossil energy, interacting through commerce and travel, merging though sex, protected from global war by the nuclear umbrella, and immersed in the World Wide Web, these many cultures are gradually compressing, homogenizing, and coalescing into a complex global culture. As the communication afforded by books, radio, telephone, television, and cyberspace envelopes the earth, the number of different languages in common

use, which dropped precipitously in the 20th Century, has stabilized, and English has emerged as the transcendent language of a transcendent global culture. A new age of humanity is evolving.

Access to knowledge is increasing exponentially, but so is access to misinformation, fiction, frivolous pursuits, and idle chatter. Currently, electronic communication is consuming a vast amount of human time and energy, and most of it is accomplishing nothing. We're lost in a world of dreams. Our new found access to information offers us the potential for lasting peace and prosperity if we can somehow regain the thirst for knowledge and the will to work that we've lost in this age of complexity and complacency, but will we wake up before our face hits the floor?

If an anti-missile missile or a laser smacks a nuclear armed missile, what happens to the warheads? Do they disintegrate and poison the upper atmosphere? Do they fall to earth to be scavenged and sold to the highest bidder? Or do they fall into the sea and tick away like time bombs to surprise some future generation with a poison plume? Why would anyone bother with a missile when they could put it in a shipping container or smuggle the nuclear material across the border and use it as a poison? Why bother with nuclear at all when there are dozens of other dastardly ways to spread the panic and terror that grip the nation that we shouldn't talk about lest they hear? Meanwhile we're left with the responsibility of babysitting many thousands of nuclear weapons for hundreds of thousands of years.

The Age of Imperialism is over for the moment. No major nation has the strength and will to engage in a war of conquest. Besides, there's the nuclear umbrella, although, if crazies get nukes, the nuclear umbrella could leak. No nation with an even vaguely sane government would attack another nuclear armed nation with a missile that has an obvious return address, but many governments are obviously not sane. So far, the nuclear umbrella has kept the peace amongst nations with nuclear weapons, but the winds of change are beginning to blow, and umbrellas are hard to manage in the wind.

Much of the friction between cultures is no longer at the borders of nations. Currently, for much of humanity, the borders that separate cultures are neighborhoods and backyard fences. The wars of today are about different cultures that need to survive in the same place or get their energy from the same place. The dominant theme of warfare is rapidly changing from the conquest of nations to the extermination of different cultures. Today's wars are still about water, turf, energy, wealth, and religion, but they're often regardless of government.

As population density and the number of refugees driven out of their homeland by famine and war increases, the friction between cultures also increases. If the assimilation and merging of cultures cannot absorb this friction fast enough, the sparks of violence ignite.

War only seems wise in the absence of wisdom. The antidote to war is wisdom. Had we spent our money in Iraq and Afghanistan building schools and protecting them, the Taliban and al-Qaeda would have lost their leverage and withered away in a generation or two. Unfortunately, most people lack the wisdom to see past next Tuesday and therefore lack the patience for peace.

Panic

When the twin towers came down, I dropped everything and surfed the media coverage for several weeks. By the end of the second week, thinking I had enough information to begin an analysis, I went to the keyboard. The first thing that came out was ‘I smell an ambush and George took the bait’. George Bush did not see the real target nor did he see the real enemy. It seems that the majority of the American public didn’t see them either. Their attention was focused on the weapons of mass distraction and they seemed blissfully unaware of the real weapons of mass destruction. The destruction of the twin towers was bait and George took it hook, line, and sinker. It seems that Osama knew that an expensive military with a declining economy has always been a recipe for disaster, and George obviously didn’t.

Like the hunting scream of a cougar creates the panic that makes for an easy kill, 9/11 created a lot of panic. It’s our panic that has cost us much of our health and wealth, many of our freedoms, and probably the civilization. The total time and energy spent on all aspects of our reaction to 9/11, both public and private, has been a waste of time and energy worth many trillions of dollars. Osama’s stated goals were the destruction of the U.S. economy, and so far 9/11 seems to be working beyond his wildest dreams.

The loss of the World Trade Center was a horrible personal tragedy for many thousands of people, but it did nothing to endanger the sovereignty of the nation or the welfare of its people beyond the immediate event. World trade barely even blinked.

We lose that many people to cancer every few days. We lose that many people due to incompetent medicine every few weeks. More Americans die violent deaths in car crashes about every six weeks. Americans murder as many Americans every two months as were lost in the twin towers and they do it year after year after year. You'll get hit by lightning three times before you get hit by a terrorist.

Around the world, our angry and panicked response to 9/11 has cost the lives of hundreds of thousands of innocent people and devastated the lives of millions more. This has not gone unnoticed by the rest of the world and has been a major cause of the increase in terrorism. The first step in counter-terrorism is to quit pissing more people off.

Had even a small percentage of our efforts been spent on facilitating and protecting education and infrastructure in Iraq, Afghanistan, and elsewhere around the world, al-Qaeda and the Taliban would have withered away and ISIS would never have formed.

In this age of peak oil, as we begin to comprehend the finite nature of the energy that sustains our complex civilization, how much energy and resources have been spent on the wars in Iraq and Afghanistan? What will be our return on investment? Had it been spent on the research, education, and infrastructure to utilize alternative energy sources, we could have been well on the way to energy independence and declining greenhouse gasses.

It’s getting obvious that our efforts to stave off disaster will be too little too late. 911 cost us 3,000 lives. Our obsession with fear and vengeance instead of dealing with the very real problems we face could cost billions of lives.

Violent Extremism

The foundation of most of today's violent extremism is modern technology in the midst of ignorance, in combination with a variety of individual and cultural insanities as people become lost in the vast sea of information and misinformation of the internet.

The mountains of Afghanistan and Pakistan were places of relatively stable, isolated cultures with little access to knowledge from the outside world. The Russian war in Afghanistan was a violent intrusion of first world technology that left a legacy of extreme poverty, a culture of war with lots of weaponry, large numbers of orphans, and a massive disruption of education for children in general. Into this void stepped the Taliban and al-Qaeda.

In Iraq, U.S. sponsorship of Saddam Hussein led to the Gulf War, which left poverty, lots of orphans, and seriously disrupted and distorted education for the children. The genocide on the road from Kuwait City left a generation without fathers. The second war in Iraq further disrupted the educational system and left the Iraqi people without effective government. Into this void stepped a variety of violent extremists.

In the U.S., three generations ago, the use of birth control became widespread. In its first generation, birth control spread predominately to educated liberals. 'Make love not war' was really about make love not babies. Birth control also spread amongst people with the wisdom and ability to raise the next generation of teachers. It did not spread widely amongst the poor, the illiterate, the ignorant, the unintelligent, the misguided, and the fearful. A generation later, this resulted in a serious imbalance in the wisdom of the community. In the third generation of birth control we see an already imbalanced educational system further displaced by virtual entertainment, and levels of effective education have dropped to the point where we see the rise of violent extremism in America. Most of it is simmering just below the surface.

When a sufficient percentage of the population have a lot of time to think, not much accurate knowledge to think about, and easy access to wide scale communication, false assumptions proliferate and collective insanities evolve. The behavior of the Radical Right is becoming increasingly similar to the behavior of the rest of the world's violent extremists; based in ignorance, false assumptions, fear, and misguided religion.

In Afghanistan and Iraq, a new generation is regaining access to knowledge, and a long, slow, and brutal rise to peace is beginning. In the U.S., however, levels of general intelligence and education are still falling, and violent ideologies are on the rise. Large groups of people are brandishing guns, talking revolution, and buying many billions of bullets. As their level of discontent rises due to the coming decline of the conventional economy, the occurrence of overt violence will correspondingly increase. Any severe disruption of their way of life could provide the fear that would trigger an attempt at violent revolution.

In the U.S. we've allowed a large number of ignorant people, many of whom firmly believe in revolution, to buy an immense amount of weaponry and

bullets, while our military is constrained elsewhere. This is not wise. We live in a country born of one of the very few violent revolutions in human history that did not end in disaster. The American Revolution succeeded because we had lots of resources, lots of room, a generally competent population, and the oppressing government was a month away. The assumption that we can do it again in the midst of all the challenges we face and responsibilities we bear is madness born of ignorance and fear.

We're about to get a revolution of some sort because our systems of government and money are not working, but a violent revolution of fools and madmen is certainly not the revolution we need.

Bashar al-Assad's father Hafez was ostensibly elected as president of Syria, but, in reality, was a benevolent, progressive, but ruthless dictator, who maintained power for 30 years through a large, loyal, and ruthless military and security apparatus.

When Bashar's older brother Bassel died in 1994, Bashar was in England about to start a career as an ophthalmologist with a comfortable lifestyle. He had little interest in politics or the military and no expectations of ever running a country. Suddenly he was back in Syria in the military academy, being prepped for leadership. He was given power to lead a 'campaign against corruption', which he used to eliminate the competition. When his father died in 2000, Bashar ran unopposed and replaced his father as president. Bashar was ostensibly a nice guy who, together with a beautiful and classy wife, did good things for the people of Syria. Just about nobody disliked them and they went about their lives in public, often without bodyguards.

But his father's large and ruthless military and security apparatus was still there, growing ever larger and more powerful, and were, in reality, the real rulers of Syria. The people of Syria were relatively well cared for, prosperous, and peaceful, but they had no real freedom. In the euphoria of the Arab Spring, they thought they might gain their freedom. Now they have nothing but poverty and misery.

To call the conflict in Syria a civil war is no more accurate than calling the American Revolution a civil war. Some people who call it a civil war are lying to disguise their greed, but most people just use it as an excuse for apathy. In a civil war, it's easy to stand back and not take sides. The reality on the ground is indiscriminant slaughter and destruction by an out of control and ruthless military and security regime, well armed by the Russian military industrial complex, with a subsequent uprising in defense of life and liberty. The American Revolution was about much less serious injustices.

Without the help of the French, the American Revolution would have taken a very different course. As soon as it was clear that Syria's Russian air force was indiscriminately bombing civilians wholesale, we could have taken the moral high ground, told Vladimir Putin where to shove it, bombed Syria's air force back to the Stone Age with a double handful of missiles, and gone home. In combination with supplying the original Syrian rebels with just enough anti-tank weaponry to defend themselves, it would have prevented the thorough destruction of Syria's infrastructure, saved many thousands of lives, and gotten it over with before it attracted crazies and fanatics from around the world and exposed the regime's stash of chemical weapons to theft. Without the support of their Russian air force, the Assad regime would have folded almost immediately.

Obsessed with the perceived failures of our clumsy attempts at nation building, we failed to consider what can be done with the momentary exertion of great force. The cost of stopping this war at the onset with a double handful

of missiles would have been less than we've already spent on humanitarian aid that's barely a band aid on a disaster we could have easily averted.

It's too late now. The world stood by in ignorance, apathy, cowardice, confusion, and corruption while Russian jets, Russian bombs, Russian missiles, Russian tanks, Russian helicopters, and Russian small arms pulverized Syria. We turned our backs while our neighbor Syria was beaten to a pulp. It was the Russian military machine that pulverized Afghanistan and the U.S. military machine that pulverized Iraq that introduced us to al-Qaeda and the Taliban. What has the Russian military machine introduced us to in Syria? This time they've given us the Islamic State.

Putin

When the Soviet Union disintegrated, it was the American Neo-Cons who went to Russia to teach democratic capitalism. Now, Moscow has the highest concentration of billionaires on the planet, and their 'democracy' is a corrupt sham commonly referred to as a kleptocracy. Vladimir Putin's grandfather was Joseph Stalin's cook. People who study him compare his personality to that of Mussolini. Putin is a dangerous man and appeasement just kicks the can down the road. History tells us again and again not to appease a dangerous madman. After the fall of the Soviet Union, most of Russia's allies eventually became more or less democratic. Putin finally decided he had to take a stand to preserve one of the last dictators supported by the Soviet Union. Vladimir Putin doesn't give a rat's ass how many people's lives are destroyed in Syria just as long as he can keep his naval base on the Mediterranean Coast and make a profit doing it, and the world let him get away with it. We had the chance to prevent a terrible tragedy that will have serious global repercussions for generations to come, and we chickened out and blew it.

Syria and Iraq no longer have the physical, financial, political and social infrastructure to function as nations. Most of the problems in the middle east stem from the artificial and arbitrary borders crammed down their throats in the aftermath of WW1. They need to separate into the cultural regions that prevailed before fools drew lines on a map, then gradually recombine. Every day that we wait, the constant destruction of infrastructure thruout the Middle East makes the outcome worse. Until 2015, it was just the Russian military industry that was destroying Syria. Now it's just about every military industry in the world. We certainly can't fix this mess. We can't even keep it from getting worse in the short term. We can, however, stop a war that is sucking more and more weapons and hatred into, around, and through Syria and continues to empower terrorists, crazies, and thugs throughout the world. The splinter is already festering, but if we don't pull it out it could easily turn into blood poisoning.

"Punishing" Assad would be like spanking a hornet's nest. It's a cop mentality and we have a long history of failure trying to police the world. Waste his air power with massive force, be done with it and go home, let the Syrians sort out the mess and start to heal, and give them whatever help we can that they ask for in rebuilding their infrastructure. Sanctions should be about disabling the Assad regime, not punishing them. Whichever way we go, we need to get off the fence, because the current situation is dangerous for the entire world. Get this war over with. Talking to insanity is clearly not working, so beat it down.

Putin and Assad played us like a fiddle with their chemical weapons strategy. It took the world's attention away from the real death and destruction, it let them pass the buck cleaning up the mess they'd made, and it prevented the rest of the world from doing much of anything until the chemical weapons that they chose to show us were disposed of.

Meanwhile, many millions of people are refugees with nothing but rubble to go back to if they ever get the chance. Some of the Syrian cities that have been

pulverized were the oldest continuously inhabited cities in the world. The massive poverty and squalor of the refugee camps is a breeding ground for ignorance, violence, and disease. War, famine, and disease will have a lot to do with the eventual outcome. The destruction of Syria has created a huge wave of poverty and violence that will spread from the Middle East to the far reaches of the earth. We need to understand that Syria is now a very small enclave of comfortable insanity surrounded by a wide expanse of uninhabitable rubble.

For all the waste, corruption, and incompetence of our involvement in Afghanistan, we were eventually somewhat successful in restoring some sanity and stability after the devastation of the Soviet invasion and the subsequent rise of the Taliban. Currently ¾ of the people of Afghanistan approve of what we've done and our continued but limited presence there. The key to that success was the largely unintended consequence of increased education and access to knowledge enabled by the presence of the coalition. Were it not for the incompetence and corruption involved in our efforts, we could have done a much better job in half the time for a small fraction of the expense. Thruout the Middle East, we need to accept responsibility for our mistakes and not turn our backs on people in need.

The ignorant, selfish, and cowardly procrastination of the world's governments in not standing up to Vladimir Putin has brought us to a major crisis that still needs to be dealt with. The dangerous and destructive results of our cowardice are steadily increasing. The more he gets away with, the bolder he becomes. He's a bully and a thug and he pushes when he sees weakness.

This is not about politics. This is about standing up to corruption and it's a long and bitter story for Russia. In 1929 Stalin starved the farmers into collectivization. By 1932-33, millions had starved to death and all 7 million Kulaks had been exterminated in a brutal genocide. It worked, and by 1939 virtually all of Russia's farmland had been collectivized, but the cost was very high. He killed off a huge portion of the nations best farmers, and with them the knowledge and heritage of farming.

In 1939, the Soviet Union entered WWII in an uneasy and bickering alliance with Germany and the axis powers, but Hitler knew that Germany desperately needed the oil in the Soviet Union, and in June of 1941 the Soviet Union was betrayed by Hitler and spent the rest of the war fighting the Germans. They eventually stopped them, but the cost in human life was high. They lost most of their brave young men. By the end of the war there were around 22 million more women than men in the Soviet Union.

From 1929 to 1953, millions of political and social dissidents were sent to the Gulag. Anyone challenging the status quo of Stalin's regime was removed from the Soviet culture. Aspirations of freedom within the culture were greatly diminished. By the end of Stalin's rule, Soviet culture had been largely reduced to the women, the wimps, and the corrupt, and their access to information was tightly controlled.

Behind every dictator there are a lot of people who are comfortable with the security of life in a dictatorship. It's generally the only life they've ever known. Every dictator needs an army, a police force, and an economy. The underlying foundation of most dictatorships is corruption, and without a different perspective, it's generally accepted within the culture. Half of the $52,000,000,000 spent on the Olympics in Sochi went to bribes, and Russian society barely even blinked. The control of information and the media in Russia keeps them largely unaware and misinformed, and the Russian people have a large cultural acceptance of corruption. The Gulag has not gone away. It's smaller, but Putin's use of it is not much different than that of Stalin.

Many years ago, before the fall of the Soviet Union, I heard an account that demonstrates the culture of corruption in Russia. I was talking with someone who was doing business with the Soviet military. He told me he was talking with a general when lunch time came around. The general radioed his crew to fire up the helicopter, and a huge helicopter showed up, took them to lunch in another town, and brought them back.

In order to sustain a peaceful dictatorship, it’s necessary to control the population's access to knowledge of cultures that live with greater freedom and less corruption. As the internet spreads around the planet, control of information is gradually shrinking and the percentages of the populations needed to sustain a comfortable dictatorship are correspondingly shrinking. In places where large percentages of the population are aware of the freedom that they don't have, the levels of outrage get to a point where they rise up in open rebellion. The control of information is the linchpin of the power of dictators. The reaction of the world's dictators has been a desperate attempt to hold on to power by controlling the press and the internet and filling them with cunning lies and propaganda.

It's not easy to challenge corruption. Overthrowing a dictator without an immediate, qualified replacement has been catastrophic for almost every country that has tried. They didn't have a sufficient majority of enlightened people to pull it off. There are no quick solutions for ending corruption.

When the educated and more cosmopolitan people of Ukraine rose up and threw out their corrupt dictator, Putin lost his puppet who had been in control of the Crimean Peninsula. At the heart of the Crimean Peninsula's economy and much of its culture is the Russian naval base at Sevastopol. At the heart of Crimea's future economy is a lot of oil shale. Just around the corner of the Black Sea are Putin's Palace and Putin's Olympic Theme Park at Sochi. Construction was set to begin on the Kerch Strait Bridge linking the Crimean peninsula with the Russian mainland. The fall in the price of oil has put the project on indefinite hold so Putin is focusing on control of Eastern Ukraine for access to Crimea. Putin is intent on absolute control of the Black Sea. It's Russia's only access to the Mediterranean and to the Atlantic in winter.

The early etymology of the name Ukraine has to do with a border region. Today, Ukraine is still a border country. When the Soviet Union fell apart, fools drew lines on a map, and the political border between Russia and Ukraine did

not coincide with the cultural border. The people of what is now Eastern Ukraine and Crimea are mostly Russian by language, culture, and economy.

After the breakup of the Soviet Union, all of the countries of Eastern Europe eventually aligned with Europe and the democracies of the West, with the exception of the de facto and utterly corrupt dictatorship in Ukraine. With the ousting of Victor Yanukovych, who was Putin's corrupt puppet, Putin stood to lose control of the last remnant of the old Soviet Union, and along with it his naval base at Sevastopol. True to his personality as an utterly corrupt and amoral thug, Putin chose a violent takeover of Crimea, and is conspiring with the more ignorant, violent, and corrupt portion of the population of Eastern Ukraine to get it back. Crimea and Eastern Ukraine would logically be part of Russia, but Putin is seriously insane, and has chosen a very disruptive, dishonest and dangerous method to try and get it back.

When Putin gave the separatists a sophisticated surface to air missile launcher, they promptly screwed up and shot down a commercial airliner. The evening of the crash, I heard a live audio feed from the crash site. It was clear from the man's voice that it was a gruesome site, but his most informative comment was about the many people who showed up and immediately began a pathetic attempt to try to remove the evidence. It was obvious that he needed to be careful about what he said, but he eventually got the chance to describe them as drunken hooligans.

By the end of Stalin's rule, much of the remaining cultures in Ukraine were the fascist remnants on one side and the communist remnants on the other, but they were still a minority. Most of those who sided with the Soviet Union during the WWII were those who spoke Russian and had benefited from Stalin's purge. Most of those who sided with Germany during the war were not fascist, they were just pissed off at what Stalin had done to them. The recent events in Ukraine have been greatly influenced by Stalin's shaping of Ukrainian culture.

Putin's control of the media in Eastern Ukraine and in Russia has led to a very inaccurate perception that the new government in Kiev is fascist. The Russian language media in eastern Ukraine is filled with lies and distortions. The picture of a little kid injured in a government bombing attack was actually from Syria. The picture of blown up factories was actually an industrial fire that happened long ago and halfway around the world. These are just a few of many lies from Putin's media.

To confront Putin militarily would most likely result in great harm to many millions of people, but not stopping his power mad plans to restore the Soviet Union only increases the danger. He's a severely insane and corrupt man in a position of great power. We need to take the moral high ground, call him out and expose him in public for the completely amoral corrupt thug that he is, and find a way to ambush him and choke him down.

Backing him into a corner with sanctions is a very dangerous strategy. It assumes that the man is sane when it's obvious that he's not. It's not a bad strategy if it's a stalling tactic and a decoy while we find a way to take him out, but he's not going to back down if he can dodge. Sanctions are not a financial threat to Putin himself. He's already the richest man in the world. If we think

that hurting the Russian economy will pressure him with internal strife, we are ignoring the Russian culture of nationalism, corruption, propaganda, and control of the media.

It's natural and understandable to assume that other people think like we do, but it ain't so. It's the most common cause of misunderstanding other people's intentions and behaviors. Negotiating with insanity is most often a futile gesture.

The last time we failed to deal with a madman on the other side of the world, we ended up in WWII.

Putin Trumped Clinton and the Robber Barons have captured the White House with a madman at the helm. Looking into the eyes of Trump and Putin, we see many similarities. Both are devoid of compassion, honesty, and morality. Both are skilled con artists. Both have an intense compulsion to win, and inherent in that compulsion is the right to control the lives of other people. Both are extremely intelligent, but the smarter you are, the crazier you can be. The differences are that Putin's lies are calculated and subtle; Trump's lies are off the cuff and easily seen. Putin is well educated; Trump is an intellectual idiot. Putin is the richest man in the world; Trump is just a billionaire. Putin is a remorseless, stone cold killer; Trump hasn't been there yet. Trump's praise of Putin is reminiscent of Hitler's praise of Stalin in the late 1930's. Vladimir Putin's grandfather was Joseph Stalin's cook.

Let's move the conversation on to causes, consequences, and cures.

The baby boomers were born into the most energetic time and place in all of human history. They call themselves consumers. Raised in a culture before the internet, a high percentage of baby boomers were easily duped by Putin's propaganda machine. Most of them still believe in the American Dream, even if they're no longer living it. Make America great again? Great can be a very cunning word. Used without context, it keys positive memories unique to each person. It's a bit like verbal MSG.

Beginning in the mid 1960's, the baby boomers entered the first generation of widespread birth control when it was almost exclusively responsible, educated liberals who used it and failed to raise the next generation of responsible, educated liberals to vote in our last election. Voter demographics bear this out.

Next was the generation born into the first age of the internet. The internet has enabled an immense increase in the availability of knowledge, but it has also enabled an immense increase in the availability of misinformation, false assumptions, and a variety of mass insanities. This was also the generation born into the age of video games. A large percentage of this generation have spent a major portion of their lives in fictitious realities and are severely lacking in their awareness of the actual reality that's going on around them.

The next generation is entering an age of war between tyranny and transparency. This is the generation that will need to deal with the demise of the democracies. The American Revolution, just like any revolution, was about limiting the power of the wealthy. In those days, it was the king and his cronies. It required that a sufficient percentage of the population be intelligent, educated, practical, and responsible enough to pull it off and sustain a viable government in the aftermath. Most revolutions fail. The intellectual de-evolutions of the first generation of birth control and the age of video games, and the inevitable bureaucratic alzymers of large institutions have been major factors in our inability to sustain a viable government and, along with many of the world's democracies, we are defaulting to the power of money. The final demise of a democracy is marked by the loss of the free press. Russia's attempt at democracy has failed. Egypt's attempt at democracy has failed. Turkey is no longer a democracy, and a number of others are spinning down the drain; sucked in by ignorance and fear. Even the long established democracies have been severely corrupted by fake news. Propaganda is almost as destructive to democracy as control of the press. It's just more subtle.

The robber barons have sucked up most of the money, and they're not spending it on what this civilization needs to sustain itself. The current output of the industry of

capitalism is pouring our wealth into the landfill at an ever increasing rate. Capitalism led by the oligarchs is eating us alive.

We need to understand how our money has been concentrated into the control of so few. We gave it to them. We put our money into the stock market. We bought the trillions of tons of cheap, disposable stuff that their advertising conned us into buying. What most of our money bought came back ever so briefly on its way to the landfill, but a lot of it was steadily siphoned off by the robber barons. We stood by while so many people defaulted their morality to the convenient assumption that anything that's legal is moral. We got so caught up in the feeding frenzy of unfettered industrial capitalism, that we failed to notice that we traded our freedom for gluttony.

Prisons

Stopping crime with prisons is like stopping diarrhea with a cork.

There are many types of criminals; those who are violently insane; those who turn to crime because they don't know any better; those who find themselves in a situation where hunger supersedes morality; and those who've done nothing wrong except break a law.

For the violently insane, we can differentiate between those with pathological disorders of the brain {often associated with drug use, predominantly alcohol and meth}, and those with unsane thinking habits. For the pathologically insane, if their ailment can't be cured medically, confinement of some kind may be necessary, but it shouldn't be punitive. Punishment is totally ineffective and cruel. For those with unsane thinking habits, confinement may be necessary, but rehabilitation is possible with stern compassion and education.

Those who turn to crime because they don't know any better have grown up, for whatever reason, without contact with moral behavior, or, in many cases, with negative reinforcement associated with moral behavior. These are probably the hardest to rehabilitate, but enough years on a stern, but compassionate chain gang might do he trick, and would at least make them less toxic parasites on the community.

For a large portion of the population, hunger supercedes morality. Sometimes hunger is real and stealing is about survival. A basic cultural safety net that covers the basic needs of the poor and disabled is less burden on the community than the inefficiency of poverty and crime associated with real hunger. Sometimes hunger is about addiction. Education is most of the cure for addiction. If people are fully aware of the eventual consequences, very few will choose to become addicted. Most hunger is about gluttony. Humanity was born hungry, and the sense of hunger often persists long after our physical needs are met. A lot of people confuse want with need.

Several hundred years ago, when the US constitution was constructed, life was relatively simple and culture was relatively uncomplicated. It didn't take very many laws to cover the range of individual transgressions and disputes. As the complexity of civilization increased, the number of laws has exponentially increased, but their accuracy has so decreased that our law enforcement system is starting to look like a cop running through a crowd blasting away at the bad guy with a sawed off 12 gauge. A very large percentage of incarcerated people haven't harmed anyone. An amendment to the constitution requiring immediate proof of intentional harm is needed to curb the current travesty of the American prison system.

Because prisons contribute to poverty and poverty contributes to crime; because prisons foster and spread a culture of criminal behavior; because, for most types of criminal behavior, prisons create more crime than they deter; because millions of good people around the world are abused in and by prisons; in their present condition, prisons are a crime.

The Affordable Care Act

While the United States has one of the world's best medical systems for the wealthy, there are dozens of countries with better medical care for the general public at half the cost.

The basic problems associated with health care in the U.S. are not enough good doctors and way too many parasites within the health care system.

The time and money already spent fighting over and then launching the Affordable Care Act would have put enough doctors through medical school to solve the problem of not enough doctors. With plenty of doctors, competition would quickly drive the price down and weed out the bad ones.

The insurance industry provides no health care at all. The purpose of the insurance industry is to provide a common money pool to cushion the fall for individual people. The United Stated Government already has its own money pool. If everyone is to have health care, the government can dispense the money to doctors directly. There's no reason at all for middlemen to make a profit. Other than some necessary bookkeeping, the insurance industry's involvement in universal health care is 100% parasitic.

The Affordable Care Act looks good on paper, but it does almost nothing to reduce the parasitic bureaucracy of the insurance industry that they can't sidestep, and is likely to actually reduce the number of doctors.

It's a shame that the new health care system will turn out to be a failure compared to what it could have been. Most of the blame lies squarely on the Republicans, because their alternative was even worse and their obstructionist agenda severely compromised constructive discussion. It was the Republicans who protected the parasitic insurance industry. Their blind faith in capitalism is founded in ignorance, fear and greed, and is failing us badly.

For all its shortcomings, the affordable care act is a foot in the door, and hopefully we can begin to evolve it into something that works.

Debt

We've borrowed a lot of money. In the US, to repay public and private debt would take an amount equivalent to around sixty million dollars a day every day since the birth of Christ, and to repay total global debt would take around four billion dollars a day for a thousand years. Most of it has already been committed to maintaining the status quo when the laws of physics clearly show that the status quo is not sustainable. Around 80% of this is private debt, not public debt.

When borrowed money is spent by the government, it's spent as if it were income tax. Income tax is a very clumsy and inefficient way to empower the community. All the money is gathered into one big pile and there's a free for all to see how it's spent. Much, and often most of it, is wasted and stolen. The people in charge are becoming increasingly inept as a seriously flawed electoral system produces candidates ever more out of touch with reality with a very exaggerated sense of entitlement. More than a few of them are self-righteous fools striving to become kings and queens. Many more are elected in fear and anger. Most of them are bought by the rich.

When borrowed money is spent by the private sector, it's mostly spent by individual consumers and ends up in the hands of the business sectors of other countries or insurance companies and big banks, and most of what we purchase is soon in the dump. The natural tendency of capitalism to concentrate profits, combined with the looting of the stock market, has allowed the money supply to concentrate into the hands of an ever smaller percentage of the population and these are generally not the type of people who are qualified to spend it wisely.

There's an immense amount of money in the hands of a very few people that's not being invested. Money doesn't keep. If the immense reserves of cash currently held by the oligarchs are not wisely invested very soon, our lack of durable product combined with a huge appetite for consumption will render that money worthless, much like it did in 1929.

When democracy failed to control capitalism at the end of the roaring '20s, it was socialism that put the country back on it's feet. We have an immediate need to reinvest in the basic mainstays of civilization. As we slide over the edge, we'll find that the back side of our energy addiction could be much more dangerous than we thought. Our basic infrastructure is aging and crumbling and much of it will soon become obsolete. We need to rebuild some of it, and we need to replace some of it with infrastructure better suited to our current needs. We need to take the money back from the rich and hire the disenfranchised middle class to rebuild the infrastructure that sustains our civilization. One way of doing this would be to tax uninvested money. South Korea has just set precedent, but it hasn't yet been implemented.

What money buys is energy, resources, and pollution. When we spend borrowed money, what we're really borrowing is the energy, resources, and clean environment that our children will no longer have. It's a debt we can't repay.

Very little of the money we've borrowed buys anything that we actually need. Most of it is spent on things we want. As individuals, we can get away with it, but for this civilization, it's an addiction that will lead to certain death if we don't control our appetite for toys.

Taxes

There will be government. In all of human history, any time, any place, somebody always takes charge. If you don't participate in your own government, someone else certainly will, whether you like it or not. In small autonomous groups, leadership can be very unstructured, but the larger the group, the more structured government needs to be. At some point, the need arises to collect taxes.

There are a wide variety of methods of tax collection. In the U.S., we have a myriad of established systems of tax collection, and most of them are very inefficient and subject to corruption.

Income tax gathers all the money into one big pile and there's a free for all as our 'elected' politicians squabble over how to spend it. Much, and often most of it, is wasted and stolen. It's pathetically inefficient to collect. When you factor in all the time and money involved in collecting it, it costs about as much to collect it as it brings in.

Property tax is the most insidious and cruel. It very actively and deliberately disenfranchises the poor from owning their own home.

Individually gathered taxes for specific purposes are inefficient, excessively bureaucratic, and consume a lot of paper.

Using the money collected with fines to pay the people who collect them induces constant temptation. It heavily biases our police toward spending their time gathering money instead of thieves and dangerous criminals.

Sales tax, on the other hand, is simple to collect, is subject to very little cheating and theft, is much more transparent, and, since just about every thing has a bar code, it can be easily directed, and does not need to be a flat tax. Converting to sales tax instead of income tax would bring much of the underground economy into the tax base.

The impact of any given product on the community could be taxed appropriately. The need for each tax would become much more transparent and quantifiable. The tax on produce could be directed straight to the department of agriculture. The tax on alcohol would be directed straight to the department of alcohol rehab. Fuel tax would go straight to the road department. Taxes on vehicle sales would go straight to the department of transportation…

Since the more you buy, the more you throw away, the tax for trash collection, recycle and disposal would be fair and equitable.

Since the more you buy, the more energy and resources you consume and the more pollution you create, sales tax induces conservation.

A serious luxury tax would separate the gluttonously wealthy from the industriously wealthy. Gluttons seldom earn their money and are a major source of pollution, so we should get our money back.

Taxes collected for law enforcement, fire protection, national defense, and other civic endeavors would become separate and much more transparent.

The infrastructure for collecting sales tax is already in place, so the conversion would be very simple.

The devil's in the details. In the setup of the system, theft at the cyber level needs to be addressed. There could be endless squabble over who gets what if the political conversion is not done smoothly. It would be best done on as local a level as possible and would need to be phased in.

F-35

The F-35 Joint Strike Fighter is a trillion dollar turkey whose sole purpose is poverty. The only thing it's designed to do is destroy. Conceived in fear and greed, and built in reckless abandon, it's already obsolete. The Chinese have already stolen the plans and all of its many multi-tasking capabilities are better served by already operational systems. We already have better bombers, better dogfighters, and better air to ground close air support. The F-35's Rube Goldberg obsession with high tech has rendered it too schizophrenic to ever be reliable. It's a trillion dollar turkey and it's not done yet.

With a trillion dollars, we could have educated the entire populations of Afghanistan and Iraq, thereby rendering the various radical extremists of the Middle East irrelevant. We could have bought and burned every poppy in Afghanistan, and still had enough money to pay them to grow food for a decade.

There are hundreds of things we could have spent a trillion dollars on that would have enabled the prosperity that brings peace instead of a weapon that doesn't even work.

We could have educated our own kids. It's a tragedy and a disgrace when a generation of children spend a large portion of their lives in debt because the government elected by their parents would rather have a trillion dollar turkey than pay for an educated country.

Fukushima

Four years after the earthquake and tsunami, if you work at Fukushima, at the beginning of your shift they put you in your protective suit. Two pairs of socks, boots, full body suit, full helmet with respirator, and three pairs of gloves. You get a new suit at lunch, and they're not reusable. If everything goes as planned, in 40 years when they finally get it shut down, they will have had to dispose of around fifty million contaminated protective suits if everything goes better than expected and a hundred million if it doesn't. The actual number will likely be quite a bit less as they design robots to do some of the work. Their going to need the robots, because it's getting progressively harder to find qualified workers as they dose out on radiation exposure and need to be replaced.

So far, nothing has been cleaned up, and it's likely that much of it never will be. All that's been done so far is to haul out of town and store it in plastic bags and barrels. The tank farm of hastily constructed tanks with plastic plumbing stretches to the horizon. The immediate "cleanup" costs could easily be upwards of half a trillion dollars, and the costs of disruption to the community will be around another half trillion. Total short term tangible economic impact of the disaster at Fukushima will be upwards of $8,000 per capita in Japan. No one knows what the eventual costs will be. There are still many potential disasters looming at Fukushima, some of which are far more serious than the initial event to date. Since Fukushima only supplied about ½ % of Japans total electricity generation, cost per consumer is already estimated to be around $1,600,000.

Studying state of the art technology for the disposal of obsolete nuclear power plants, is seems likely that a high percentage of them will end up spilling their guts one way or another. Most of them will need to keep pumping water on their fuel rods just about forever; a totally unrealistic fantasy. We don't need to hear any more crap about how nuclear energy is cheap and clean.

Tidbits

One day on the news I watched an article about the new bay bridge ready to be built over San Francisco Bay. Chinese money, Chinese engineering, Chinese materials, Chinese crew. An hour later another article showed how industry was coming back to America. Someone had started a small factory with a hundred employees making disposable chopsticks for China.

The reality is that the design for the bridge is largely American, the engineering is multinational and the bridge components are made all over the world. Now we're finding that the American made high tensile bolts and rods become brittle when exposed to salt water, and there's water seeping into the piers. The bridge will be a major money pit at best and possibly a total failure.

The real failure, however, was American politicians and fat cats demanding a spectacular 6.4 billion dollar bridge that pushed the edge of engineering capabilities, when a simple roadway on piers across the mudflats would have done a better job at a small fraction of the cost. Billions of dollars of steel and fuel and human energy wasted on a Rube Goldberg piece of art.

There was an article in a newspaper about how a change in the Rio Grande's course was making someone's land too wet to farm and he was going out of business. On the same page was an article about how a change in the river's course had brought someone enough water to start a fish farm.

I heard it from a man who knew. Never get a monkey drunk.

Never underestimate the power of ignorant people in large numbers.

In an economy of supply and demand, the less oil we consume, the cheaper the price will be.

I saw it on the wall of a shoe repair shop in Bhutan, courtesy of World View. Vision without action is daydreaming. Action without vision is a nightmare.

One year in the shop class that I taught, the boys wanted to make swords, so they took anything from the scrap pile that resembled a sword with the least work and played with them. They weren't real at all, and they had very little concept that they could actually make anything that was. The one girl in the class took a cutout from a tank and a piece of steel and made a very real and serviceable shield and dirk; the classic defense against a sword.

This illustrates a serious problem in the world today. This was half a generation ago when boys spent much more time playing with video games than girls. Video games are a very disabling curse upon our children.

Now that we have the Hubbell Telescope, it begs the question; How big is God?

Intelligence has to do with the physiology of the body and brain. The quality of a person's eyesight, hearing, taste, smell, touch, and the other physical senses, in combination with the ability of a person's brain to accurately and efficiently store and process the information the senses provide, are the general determiners of primary genetically inherited intelligence. Beyond this primary intelligence the brain develops a vast secondary intelligence as it learns to use itself and grow itself. There is also a third layer of intelligence that uses external tools of thought such as language, mathematics, computers, and the internet.

Wisdom has to do with the quantity, veracity, and cohesiveness of the knowledge one acquires in life, and is a factor of both intelligence and environment. Intelligence without exposure to sufficient accurate, wide-ranging knowledge will not result in wisdom. Exposure to knowledge, without the intelligence to accurately store and process that knowledge, will not result in wisdom.

We reach our peak of intelligence early in life and our primary intelligence gradually diminishes as our body and brain age. We reach our peak of wisdom late in life as our store of knowledge steadily increases. The irony is that, as we go through life, wisdom and intelligence pass each other by. Within the interplay of the two is the vast complexity of consciousness.

Sane and insane are very vague words that mean many different things to many different people. If we differentiate between insane, which deals with physical aberrations of the brain, and unsane, which deals with poor thinking habits that result in false assumptions upon which behavior is based, we get a much more rational view of the brain and the personality it sustains. In this context, insanity is sometimes treatable with medicine and nutrition, and unsanity is sometimes treatable with retraining thinking habits.

Whatever we think it is, it is not. The memory is not the event, it’s only the mental construct of our perception of the event from a particular perspective, and is bound to be more or less incomplete and inaccurate. As time goes by, the inaccuracy of what we remember steadily increases. If the event we remember is someone else’s description of an event that they remember, then the inaccuracy and incompleteness are multiplied.

As population increased and agriculture needed less and less manpower, an ever higher percentage of the human species moved to the cities, where they spend their days living in boxes. Houses, cars, offices, schools, stores, theaters, malls, gyms… many of them spend almost the entirety of their lives in boxes. Their entire environment has been built by other people. Almost everything they know has been filtered through someone else's perspective, and much, and often most of it, is fictitious and or false. Consequently, large percentages of the population have segregated themselves into some very unsane perspectives of the world and how it works.

ADHD

Early in the evolution of the human species, survival usually depended on a lot of strenuous physical activity. As the evolution of body shape allowed the human species to walk on two legs, they became more energy efficient. They could run down any other species that couldn't hide. As the evolution of the human scull traded large strong jaws for a large brain cavity, survival began to depend less on strength and more on creative intelligence. Along with the parallel evolutions of an opposable thumb and a linguistic tongue, this gave us the ability to make much more complex tools and language. As the infrastructure of civilization became ever more complex, there were ever more roles for people to play. Different environments required different roles and different abilities.

Just as no two bodies are alike {except infant twins}, so no two brains are alike. Within the endless variations of body and brain, people with different abilities took on an ever wider variety of different roles. The strongest, smartest guy took the role of alpha male. The biggest, fastest runners took the role of hunters. The nearsighted men and women wove baskets and built tools. The farsighted ones became the scouts. The most energetic and intelligent created the infrastructure of an emerging civilization. These were the innovators. These are the ones we now label as ADHD.

Much of the structure of the common American system of education demands conformity to mediocrity. For a person of high intelligence, this is extremely boring, but when that intelligence is combined with a lot of physical energy and a very high idle, they're not about to sit still in the midst of boredom. ADHD is very disruptive in a typical classroom.

The drug industry has tried to convince us to suppress all that energy and intelligence to make them fit the common mold, when we should be fostering and guiding all that energy and intelligence. We need their creativity. ADHD kids need room to move. We need to take them out of the conventional classroom and foster their talents instead of suppressing them.

Digital Reality

After millions of years of genetic and cultural evolution in analog mode, the human species has found digital, and it's a Pandora's Box. As we rush headlong into the digital age, we seem to be blissfully unaware of its limitations, side effects, and consequences.

In the initial development of human speech, communication was about tangible immediate reality and not much else. As civilization became increasingly complex, there was more time for creative and contemplative thought and the development of complex culture, and along with it the development of fiction. With the invention of the printing press, the accumulation and dissemination of cultural hindsight increased, enabling more complex personal and cultural foresight and also more complex fiction. Digital technology has enabled an exponential increase in the quantity and complexity of fiction. An increasing percentage of the human population are spending an increasing percentage of their lives in fictitious realities. For a substantial percentage of children, most of their life's experiences are abstract mental constructs and fiction. Most of their reality has become fictitious.

The effects of virtual entertainment on young children are just beginning to be explored. A child is conceived with a fresh brain into which life's experiences build a person. Each day's experiences add an ever smaller percentage to a person's personality. The first portion of the brain is filled with input and output to the autonomic systems of the body. Next come input from the interior and exterior senses and output to the muscles. At birth, sensory input gains its initial perspective of the universe at large and the range of body movement is fully extended. For the next year or so, the expansion of personality is largely preoccupied with exploration and control of the body. Gradually, normal development turns to exploration, interpretation, and manipulation of the immediate environment. If, at this point, their environment is limited to or predominated by non-interactive visual and auditory input, an imbalance in the evolution of personality develops between observation and manipulation. The more extreme the imbalance, the less capable a person becomes at coordinating observation and interpretation with manipulation of their environment. When this condition is augmented by the introduction of video games, personality becomes conditioned to very simple manipulation in response to immediate stimulus without complex interpretation [if you take the time to think even one tiny analytical thought, you lose]. As video games become more interactive, players are increasingly immersed in fictitious reality. Subsequent immersion in the real world of complex situations without continuous immediate stimuli, requiring complex manipulation of language, tools, and materials, with very real consequences, leads to passive-reactive people with very high levels of incompetence and frustration. Virtual entertainment is rapidly becoming an extremely dangerous dissipation of human consciousness. It conditions the type of passive reactive personality that is unaccustomed to independent creative thought and is easily manipulated by

emotional stimuli. Video games are an excellent tool for teaching hand to hand combat, but soldiers are for war and war is about destroying and killing. Playstation is actively training warriors in large quantities when what we need are creative, productive workers and educated, responsible citizens to produce the wealth and wisdom that create peace.

With the advent of the cell phone, a generation of virtual orphans are spending a rapidly increasing percentage of their lives engaged in idle conversation and a rapidly decreasing percentage of their lives learning anything about anything. In the absence of parents, living in comfort, a generation of children are evolving a culture without cultural inheritance. Some of the many things that they didn't inherit are the senses of responsibility and respect, the understanding of work, the ability to do physical work as their bodies become inexperienced and weak from lack of use, and a general lack of the hindsight that enables foresight. A large percentage of our children are rapidly becoming a strange new kind of feral.

Throughout most of human history children have been raised by their grandparents. The reason for this has been that people of childbearing age were needed for the physical work necessary for survival, but the result has been that children were raised by older, wiser adults. This conjunction of the energy and intelligence of youth and the wisdom of old age multiplies the rate of transfer of fundamental cultural knowledge. The less time a child spends interacting with and observing adults, the less cultural inheritance the child learns. In the midst of the current feeding frenzy, large percentages of children are increasingly apart from their parents and grandparents and have very little access to cultural wisdom. Without knowledge from the past, they lack the hindsight upon which to build foresight.

There's no going back. Despite its many dangerous side effects, the communication revolution is here to stay and has the potential to exponentially increase our awareness of the human condition and the universe around us.

Digital communication is one of the most dangerous Pandora's Boxes the human species has ever opened, but it also holds the promise of an immense increase in the overall wisdom of the human community.

Incompetent Government

The real incompetence in our government is not just the incompetence of congress. It's the ever increasing incompetence and corruption of the entrenched bureaucracy of unelected management throughout the various government agencies.

In the 1930's, as the size of government projects increased with such projects as the Hoover and Grand Coulee Dams, consortiums of companies were necessary to get the job done, and the established practice of accepting the single low bid, with every nut and bolt specified, was gradually replaced with a more goal oriented, rather than process oriented bid system. As the prospect of our entry into WWII became increasingly evident, time constraints and the necessary massive increase in the volume of production eventually required the de facto elimination of the bid system. Because we had a common goal, a pervasively positive work ethic, and a largely intact and available resource base, it was a system that worked well. Without the constraints of a bureaucratic bid system, innovation drastically increased the efficiency of production. It was messy, but we were in a hurry.

That was then and this is now. We no longer have a common goal and a pervasive work ethic, the individual goals are just a paycheck, and, as the massive growth of bureaucracy clogs the system, government is becoming ever more incompetent.

In a business environment, incompetent management generally results in failure and a more competent company fills the void. In government, there's no bottom line, no competition, and it's almost impossible to get fired.

There's a tipping point where, in any working environment, incompetent management can drive away any real talent and competency by causing them to quit in disgust. Large portions of the U.S. Government have tipped into pervasive incompetence.

Democracy

There will be government. Throughout all of human history, throughout all cultures, true anarchy only appears for a few fleeting moments, usually measured in hours. Fundamental to human civilization is the need for leadership and cultural structure. If you don't participate in your own government, someone else certainly will, whether you like it or not.

For every new democracy, the fundamental purpose of its inception has always been to limit the power of kings [the rich guys] when they become corrupt or otherwise incompetent.

Information technology is exponentially increasing the volume and complexity of human consciousness. A new age of personal, portable access to information and communication is transforming the nature of civilization. In combination with a global language, it holds the potential to spread democracy thruout human civilization, but it's only potential.

The ability of people to create and maintain a democracy has always been dependent on a sufficient percentage of the voting population being intelligent, educated, sane, and able to communicate with each other. It’s the intelligent, educated, and sane parts that are currently in peril.

The primary reason that democracies are currently failing to get the work of maintaining our civilization done is that, due to the ravages of selective birth control, the diversions of entertainment, the abstraction and inaccuracy of mass media, and the encroaching poverty of too many people fighting for too few resources, an increasing percentage of the voting population is getting progressively less intelligent, less well educated, less sane, less responsible, and more desperate.

Two of the most important traits for successful birth control are responsibility and education. Thruout the world's democracies, for several generations, the percentage of responsible, educated voters has been falling, and the world's democracies are getting progressively dumber.

Entertainment can be a very strong addiction. Entertainment, in general, does not educate and does not accomplish. An immense number of children are reaching adulthood with little or no knowledge of how or why to get the work done that enables our wealth.

Mass media runs the gamut from extreme honesty to a pack of lies. It ranges from people obsessed with accuracy to people who never bother to check their 'facts'. Using emotion like MSG in the media, many eloquent fools lead large portions of the population into dangerous delusion.

The basic physics of population increase, resource depletion, pollution production, and the de-evolution of birth control are pulling the rug from under our civilization, and the first to feel it are the ones at the bottom. In the developed world, poverty is growing from the bottom up. For most people not used to living in poverty, hunger supercedes morality. Most of the population hasn't consciously noticed yet, but their general feeling of insecurity shows that

they sense it coming on a subconscious level, and it leads to a lot of nonspecific fear that clouds our perspective.

As the internet reveals to the people of the world living under dictatorships the potentials of democracy, most of them are failing to notice that democracy is essentially organized mob rule. A democracy cannot survive when a culture that wishes to impose its lifestyle and or philosophy on others achieves power. Egypt has certainly found this out. A substantial minority of Egyptians are still mired in ignorance and obsolete religious systems and, when the ballot box gave their particular mob control, they chose to take on the role of rulership instead of leadership and impose their unsane religious system on the Egyptian people. Consequently, Egypt is spiraling into poverty and chaos, and their bid for democracy has not succeeded.

Democracy can be a disaster. Even Adolph Hitler came to power through the democratic process. Look at the faces in the crowd at a Donald Trump rally and compare them to the faces in the crowd at the Nuremberg rallies. Trump said the other day that Vladimir Putin wasn't a bad guy and he was someone we could work with. That’s what Hitler said about Stalin. Vladimir Putin's grandfather was Joseph Stalin's cook.

Democratic Capitalism

Towards the end of the last little ice age, as the migration from Europe to the New World filled the east coast of North America, new cultures evolved to adapt to new environments. The primary refinement of culture was in the personality types that would choose to make the long and dangerous voyage into the unknown, mostly in search of freedom, adventure, and material wealth. There was a brief period of severe survival of the fittest or the smartest or the luckiest or the most cunning, but, equipped with European tools and a vast, well kept, and untapped resource base, they quickly recovered, and, unfettered by the complexities of population density, evolved a culture of ambitious consumption that spread across the continent, rebounded off the west coast, spread around the world, and endures to this day as the most comfortable and entertaining moment in human history. Clever us to build such marvelous tools and toys. Energetic would be a more accurate description. The energy of abundant farmland to fuel our bodies. The energy of abundant forests to shelter us and keep us warm. The energy of wood, coal, oil, gas, and uranium to haul the freight and power our factories and cities. The energy that lets us play.

Now we come to a time when very soon we will no longer have abundant water and topsoil for our farmland, abundant forests, or abundant coal, oil, gas, and uranium, but we still have a culture of consumption that most people seem to regard as an unquestionable entitlement. It's the American Way, and most of the rest of the world wants it too. This is not sustainable and things will soon change. Our participation in these changes will have a lot to do with our survival as a coherent civilization and perhaps as a species. First it was the American Dream, then it was the American Way and, if we don't move on to a new dream, it will soon become the American Nightmare.

Capitalism is predicated on the consumption of resources and energy for the production of the goods and services that sustain and entertain us. It evolved in the places with the most concentrated untapped energy and resources. In the United States, we call ourselves a democracy, but we refer to our way of life as democratic capitalism and our people as consumers. With uncommon exception, economic growth [increasing consumption] is unquestionably seen as good. As our appetite for energy and resources increases and our energy and resource reserves decrease, capitalism, in its current form, is eating us alive.

The work ethic that evolved in the age of plentiful energy and resources is no longer sustaining us. The concept that everyone should have a job is becoming ever more counterproductive as the machines do the work that provides us our material possessions and we find ourselves awash in jobs that create little or nothing but wasted energy and a bigger landfill. There's a lot of work to be done to retool our economy to survive the end of oil, and we haven't got time and energy to waste on unemployment and obsolete, non-productive jobs.

As we convert from a carbon-based economy, democracy can no longer be asleep at the wheel. Capitalism has been a basic tool for enabling the

complexities of civilization, but without a driver who's awake and aware, a crash is imminent. Currently, unfettered capitalism and incompetent government are concentrating the operating capital of civilization into the hands of fewer and fewer individuals, most of whom are making poor choices that don't help and often hinder and endanger the community that their application of power influences. This has happened numerous times in the past. Capitalism and government both tend to concentrate the community cash flow into the control of a very small group of people who often lack the wisdom to oversee the power they wield until they mess it up for the rest of us.

The military-industrial complex is consuming vast amounts of energy and resources. On the military side, they're trying to stop war with war. Prosperity brings peace. War destroys prosperity. On the industrial side, the motive is profit, and it's imperative that, in order for profit to continue, war must continue. The sole result of the military industrial complex is the destruction of wealth.

Stock and money market racketeers are funneling immense amounts of money into the gluttony of financial pirates who are using it to consume the energy of the community and are not investing it in the production of new wealth.

The oil and coal companies are investing huge amounts of the community's money into looking for more oil and coal to consume, when we need to be investing in sustainable alternatives and conserving our precious fossil fuel reserves.

In the case of the very capitalistic drug prohibition industry, so much American money is funding the drug cartels, that the power of the cartels is beginning to rival the government of Mexico. Prohibition finances the bad guys.

The fate of humanity should not be left to the whims of corporate executives whose mandated objective is to increase cash flow thereby increasing energy and resource consumption and its concurrent pollution, dictators who rule by cunning instead of wisdom, prohibition industry barons who rule by savage violence, and elected officials who pander to the whims and desires of an ignorant electorate or the lure of money. The human community's cash flow is currently being channeled into a consumption of energy and resources that is immensely wasteful and gluttonous, does little to provide for future sustenance, and is not sustainable. We have an immediate need to change our spending priorities. This can be achieved.

We can tax the people who have the money, but are not using it to effectively help society. For the worst of them, we can strip them of their financial power completely.

We can eliminate the drug cartels by eliminating their funding. Gradually legalize most drugs and tax them enough to fund a serious education and rehab program. The negative effects of drug use on society are minor compared to the negative effects of the prohibition industry. This won't be easy, as just about no one involved in the industry, neither the cartels, nor the growers, nor the smugglers, nor the dealers, nor the border patrol, nor law enforcement, nor the prison industry, wants to lose their paycheck. We need to find them more

productive work. We'll need to overcome a lot of ignorance and superstition about drug use and abuse as well.

We can demand much higher social accountability for corporations. Corporations differ from individuals in that they tend to have much less conscience and personal accountability, and their motivations tend to be much less socially responsible. Just as a bunch of individually nice dogs can turn into a vicious dog pack, so it is with corporations.

We can separate money from politics at all levels in order to move away from the financial oligarchies that presently pervade government. Advertising has become a pathetic failure as a source of accurate information about candidates as it becomes ever more devious, dishonest, angry, and pandering. Let's fund full-time media access for the candidates themselves, and hear what they have to say. Let's have discussions instead of devious sales pitches and debates. Individual voters cast their ballot according to their perception of the cultural similarity of the candidate. Political advertising is just the attempt to motivate a bigger gang than the other guy and it works best on those least qualified to make intelligent choices.

While we're at it, lets make it law that anyone aspiring to federal office must be able to ride Greyhound for a week with nothing but a backpack and a hundred bucks.

We can tax resource and energy consumption and its concurrent pollution with a consumption tax instead of an income tax. Current systems of income tax collection concentrate the money into one big pile and rely on government to guard it and see that it's well spent. In the ensuing free for all, much, and often most of it, is wasted and stolen. In both the collection and distribution of tax money, income tax is very clumsy, unjust, corrupt, and inefficient.

Since just about everything we consume now has a bar code, a consumption tax could channel the money directly to where it's needed with much greater efficiency and much less potential for large scale waste and corruption. The tax rate could easily be variable, according to the impact a given product has on the community. A progressive luxury tax would allow us to tax the gluttonously wealthy without hindering the ability of the responsibly wealthy to invest in industrious endeavors. We could accept the responsibilities of the right to consume addictive substances [especially alcohol] with a tax on all addictive drugs to provide for realistic prevention and rehab programs. The tax on transportation fuels could pay for the infrastructure of transportation. The department of agriculture could derive the money it needs from a targeted tax on food. Taxing consumption instead of production allows the ability to track a product's need for community investment. We could tax toys, not tools.

However we do it, if we wish to restore a viable democracy, we must somehow convert from democratic capitalism to an increasingly less capitalistic democracy in order to avert a very serious crash. Democracy derives its power from taxation of the money flow of capitalism. In order for democracy to gain control of runaway capitalism, it must find efficient ways to harness the energy of capitalism. It seems that most democratic governments have developed a kind of bureaucratic Alzheimer's, so don't count on government to get it done.

The only real control of capitalism is cash flow. We vote for the kind of world we live in with every dime we spend. In a strange sort of way, capitalism is very democratic. The problem is that money buys government and we've let fewer and fewer people and corporations control the money.

If everybody pulled their own weight, we'd have no need for most of conventional government, but not everybody does. Some can't, some won't, some don't know how. For the some that can't, society either cares for them or they die. For those that know how but don't, we need to consider that too many parasites can be deadly and deal with it. For those that don't know how, some compensate by thievery, for which we have the options of tolerating it, containing it [prisons], compensating for it with forced labor [chain gangs, which can now be done with monitors], or teaching them how to pull their weight. Some don't know how and compensate with brute force. For this we have prisons. Lock 'em in a box, or better yet, a school.

In the entire history of humanity, with just a few small and isolated exceptions, from the smallest tribes to the largest civilizations, we find no evidence of complete anarchy for more than a few hours until someone takes charge. Any where, any time, throughout human history, there has always been government of some sort. Some are by consent, some by force. Some work and some don't. Some are honest, some are not. Some are competent, some are not. Some are benevolent, some are cruel. If you choose not to participate in your own government, someone else certainly will, whether you like it or not.

As the inevitable decline of the conventional economy causes elections to be increasingly decided by the fear and anger of fools, democratic government is becoming ever more foolish, ineffectual, incompetent, corrupt, and dangerous. Democracy is only as wise as the people who vote and the candidates available for them to vote for, and the average voter has been dumb enough to let thieves within the financial industries take all the money and buy their government. The United States has the best government that money can buy, and it sucks.

Democracy is essentially organized mob rule based on the assumption that the majority of those who vote will make correct choices. Maybe they will; maybe they won't. The success of democracy is dependent on the wisdom of those who vote which is dependent on the breadth and veracity of their perspective of the universe around them. In order for democracy to make right choices, we have a serious need to divert our attention and effort from consumption to education. The success or failure of any community, from local to global, is dependent on the wisdom of those who make the decisions that determine the investment of the community's energy.

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Capitalism in its current form will not get us through the coming challenges. It's based on consumption, and consumption is driving us headlong towards disaster. When people talk about putting the economy back on track, they don't see that the bridge is out just around the corner. The cause of America's declining standard of living for the poor and middle class is that we are buying more and more cheap crap to throw in the landfill or waste energy recycling, and less and less real, tangible, durable wealth.

The cheap, disposable crap currently comprising almost all of the industrial production of contemporary capitalism is an extremely dangerous addiction. We're consuming a very finite resource base and turning it into thousands of poisons, with no thought for the future.

The obvious imperfections of the stock market have allowed vast amounts of money to be controlled by people who, for the most part, don't have the interests of the community at heart, or if they do, they don't really know what needs to be done. The stock market has allowed greed to so poison the world's financial system that it is no longer functioning as a tool for the betterment of the world community.

Like it or not, we live and die as a community. We've allowed too many parasites to live on the global community's energy. This has seriously weakened the global community and could easily kill us. There's no point trying to fix the stock market. It's an old and obsolete system that's been thoroughly corrupted and poisoned by parasites. It's become a den of rats and fleas and ticks. Let it go, and let's move on. We need a system to organize the community's financial energy that is much more immune to greed. If you have money to invest, instead of investing in the cheap toys and distractions of the immensely parasitic stock market, spend the time and energy to personally find and invest in local endeavors that create real, durable wealth. Organized public investment systems are beginning to emerge online, and have the potential to gradually replace the stock market.

We are entering an age of great stress on many of the systems that sustain our civilization, and our ossified systems of finance and government are incapable of finding solutions to our looming decent into disaster. There's plenty of money available to finance the available solutions, but neither government nor finance are investing it in much of anything useful. It's time for some new systems for organizing community energy.

FDR had the right idea. Put people to work building durable infrastructure. Welfare for the unemployed tends to perpetuate a sense of entitlement that is quite destructive to our cultural work ethic and destroys wealth, as it enables people to consume without producing. Instead of paying people to be unemployed or wasting their lives keeping them in prison, pay them to rebuild America. Where the money comes from is of no importance. It's how it's spent that determines our wealth or poverty. Presently, there are huge quantities of money that are not being spent, and most of what the people who control that money are spending is not preparing us for the wave of entropy we're about to

encounter. Money doesn't keep. If it's not competently spent using energy and resources to sustain our civilization, then our civilization won't be sustained. If you're not working, you're consuming more than you're producing.

We've become so accustomed to associating work with a paycheck, that we've forgotten which comes first. Lack of a job is no excuse at all for sitting on your butt. Anyone can look around and see work that needs to be done, even if it's just pulling weeds. If we all just get the work done, we'll all get rich; not in money, but in the real wealth of a comfortable life.

The role of democratic government has always been to control capitalism. Large scale democracy is a rare and recent event on this planet. It requires a level of community wisdom, responsibility, and practicality seldom seen in human history. The populations of the worlds democracies are becoming severely disenfranchised by the greed of capitalism, are losing their intelligence and wisdom to the de-evolution of birth control, and their sense of responsibility has defaulted to the distraction of toys.

If the problems that confront us seem overwhelming, don't feel hopeless. Hope is all we've got, so don't lose it. Just do what needs to be done. Hopeless leads to inaction; hope leads to action, and we need a lot of constructive action to get our asses out of this mess. There's an undercurrent of fatalism that reinforces the addiction to pleasure and play that is taking us over the cliff. Don't go there.

There are a number of things that can be done to facilitate more efficient, less intrusive government. First and foremost is immediate and long term investment to reverse the negative evolution of birth control. Vast numbers of people who never watch the news, never had an adequate education, and haven't got a clue or a care what's going on in the world, are raising lots of kids who also haven't got a clue. Well informed responsible people capable of raising educated, responsible children are not. We need a new form of birth control that will entice those without the wit, the will, or the wisdom. Cheap, tasty, and mildly addicting would be a good start.

Because we tend to assume that other people think like we do, it’s easy to not notice that, in a democracy where the majority elects our politicians, foolish people elect foolish government and are easily conned. The advertising that campaign financing pays for influences those voters least qualified to make informed, educated, rational decisions.

There will be government. In the entire history of humanity no matter what happens, true anarchy only lasts for a brief moment before someone takes charge. If you don't participate in your own government, someone else certainly will, whether you like it or not. In order to replace a bad government, a better one needs to be ready to take over. Revolutions almost always fail because a better system is not immediately ready to step in. Changing an existing government can be an extremely difficult task, but, with rare exceptions, it's a far better choice than violent revolution.

If we all just do the work and get the things done that provide our basic needs, we minimize the need for government. This requires the realization of community on a much more pervasive local scale. The new global community

realized by the new age of instant communication is currently passive. We're spending a lot of time talking and very little time doing. All around the world, people are demonstrating and revolting against oppressive, inefficient, corrupt government, but, meanwhile, the real work that needs to be done to sustain the community is not getting done, and, so far, the result has been steadily increasing poverty. When I see all those people on the streets protesting, I think about what life would be like if all those people were spending that time planting gardens, farms, and forests, rebuilding our infrastructure, cleaning our environment, teaching our children, and generally getting the work done that sustains us. We have an immediate need to turn away from our toys for a while and get to work, but government has become too senile to lead or get much of anything done, and capitalism is insanely addicted to cheap consumption. If we rely on government and capitalism to guide us, it's gonna be grim.

It will take a lot of hope and a fair bit of faith, but hope and faith and a swift kick in the ass from Mother Nature are always the prime motivators for meaningful changes in human endeavor.

Consumption

Life is a concentration of energy that withstands the flow of entropy. The higher the concentration, the more alive it can be. In the evolution of the human species, there came a time when we learned to concentrate energy beyond the confines of our own bodies. When we figured out how to concentrate the heat energy available from hydrocarbon fuels in a cylinder to push a piston, we became exponentially more alive.

Every dime we spend buys energy, resources, and pollution. The size of the economy is the rate at which we are consuming the planet. Throughout the media and the social consciousness there is an almost universal unquestioned assumption that economic growth is good. The reality is that unchecked growth is a suicidal addiction for this civilization.

Increasing efficiency without decreasing consumption gets us nowhere. The problem isn't efficiency. The problem is our hardcore addiction to energy.

If you research the total effects of the production, consumption, and disposal of everything you buy for even a day and spread it over the surface of the earth multiplied by a few billion, what does it look like?

Not just the visible stuff like the layer of smog that’s clearly visible from space, but the knowledge of the many thousands of different chemicals that it's composed of.

Not just the flood in Los Angeles, but the knowledge of what's in the huge toxic plume as the entire LA basin is washed and flushed into the sea. The rubber worn off millions of tires. The antifreeze and oil dripping from many thousands of cars. The herbicides and pesticides sprayed around a million houses. The residues and spills of the thousands of chemicals used by the thousands of factories around the valley. The layer of particulate smog that settles on everything in the valley.

Not just the product sitting on the shelf, but the chunk of central Canada that was turned to wasteland for the oil it took to get it and you to the store, multiplied by fifty million.

Not just the electricity, but the power plant that produced it. Visualize the energy and pollution that it takes to build and maintain a coal fired facility, and all the products of combustion that it spews out. The average human burns about 5 pounds of coal a day. Are you an average human? Visualize 180,000 railcars a day rolling to the worlds coal fired power plants. Visualize 1,200 miles of coal train rolling continuously at fifty miles an hour.

Visualize a nuclear power plant and what it's likely to look like in a few hundred years. Surveying state of the art technology for the disposal of a nuclear power plant, it seems likely that many of our nuclear reactors will end up spilling their guts one way or another as they become old and derelict.

Not just the fuel we put in our cars, but the products of combustion that come out the other end. Stick your nose in it for just a second and see what it smells like. What you can actually smell is only the smaller and less dangerous

portion of what's coming out of the pipe. Multiply that by 3,600 an hour to visualize the size of your plume. Multiply that by 1,000,000,000 to visualize the global plume. Is it decomposing or is it piling up?

One fillup at the gas station can do more work than a strong healthy human body can do in several years. This is not, however, a measure of accomplishment, it's just a measure of work done. Around town, a bicycle would get us there almost as fast, sometimes faster, but the car has to move twenty times as much weight and push many times as much air as a bicycle. The car also consumes about eighty times more energy and resources in its production, and produces hundreds of times more pollution.

When you put on your makeup, do you visualize the energy, resources, and pollution it took to make it? It's mostly just a fad like corsets or pantyhose. It's just a money scam that women have been conned into. The men I know think that painted eyebrows and false eyelashes are a tacky distraction. When done with discretion, makeup can enhance beauty, but it can't create it. Beauty comes from the inside.

If you buy a cheap plastic toy for your kid, do you visualize the environmental costs our children will have to deal with because of the billions and billions of cheap plastic toys we've bought for our kids? Do you think about what your child will learn from the toy?

Looking ahead a few hundred years, what will we do when most of our resources are homogenized, polluted, and useless in the landfill?

In everything you consume, visualize the results of your consumption. Visualize the results of everything you consume multiplied by millions and billions, and compare that to the size of the earth.

The general populace is awash in a sea of advertising conning them into consuming vast amounts of energy, resources and the subsequent pollution, buying toys to play with for a moment, then throw in the landfill or spend more energy recycling.

The energy industry advertises with the phrase "The energy we need". It's one of the biggest lies the community ever bought. It's mostly just the energy we want. I want the energy and vitality that cocaine brings, but I know that, in the long run, it will bring misery and an early death, so I look for other ways to get energy and vitality or I do without. On a larger scale we're just starting to become aware of the consequences of our energy addiction. We don't need to stop wanting, but we sure need to change what we want.

Inherent in the nature of an addiction are the difficulties associated with quitting. When you're stuck in a rut, it's much easier to stay in the rut. Unfortunately the rut we're in is headed for extinction. It's going to take the very hard and painful efforts of billions of people to climb out of this rut. Until a sufficient percentage of humanity become sufficiently aware of where capitalism is taking us to be motivated enough to make the required effort, it ain't gonna happen. So learn and teach and create a new way. Set aside your toys for a while and get to work. Time is short.

Don't give me any cowardly, fatalistic bullshit about how it's too late. Get your ass in gear. It's way too late to hit the brakes, so grab the wheel and find another way.

Poop

Way back when humans were hunter gatherers like the rest of the world's creatures, the results of our passing were much like what the rest of the world's creatures left behind.

As our cleverness increased the complexity of our lives, so did the complexity of what we left behind. With the advent of the industrial revolution, the quantity, complexity, and durability of the remains of human existence began to multiply. With the advent of the chemical revolution of the 20th Century, the volume, toxicity and durability of human residue has multiplied exponentially, and much of it is not being adequately contained, recycled, or decomposed. This is beginning to pose a serious health and survival risk for all of life on the planet, and will soon force extreme evolutionary change.

It's the durability of human refuse that poses the greatest risk. Most of what we have created will be around for many centuries. A lot of nuclear waste will be around for many ice ages. As our appetite increases for the stuff that fossil fuels and clever hands allow us to create, the toxic residue of our consumption is increasing many times faster than it decomposes. This is not a sustainable system.

The more you eat, the more you shit. We'll either discipline our consumption, or we'll choke on our shit.

Get a Job?

Throughout history, there have been many times when advances in industrial technology have put large groups of people out of work. In the past, there was generally no public safety net so there was much suffering and strife, but the next generation learned new skills and life went on. The efforts of the Luddites were of no use.

Now we come to a time when machines are doing almost all of the work that sustains the community. This leaves an immense amount of leftover people. In the long evolution of capitalism that spans several thousand generations, this is an event that, with a few small exceptions, is only three or four generations old. Capitalism's answer to this has been to invent evermore toys for evermore factories to build, make products less and less durable, and add on layer after layer of support staff, profiteers, and thieves. Finally, we've reached a point where there's no capitalist way to get everyone a paycheck and most of the ongoing paychecks are for irrelevant work and frivolous toys that are rapidly consuming the planet's energy and resources, and are poisoning the environment we have to live in. This is not a sustainable system, and the endgame will likely be grim.

As long as the established way to get a license to consume [money] is a job, the way to survive is to get a job or steal. But we don't need more jobs. We need different kinds of work. The machines are pumping out plenty of stuff to throw in the landfill or waste energy recycling, but the important work of maintaining and recreating the infrastructure of civilization isn't keeping up with entropy.

Capitalism is based on consumption, and the cash flow necessary for the operation of the world's democratic governments is based on the cash flow of capitalism. This presents a basic conundrum, as the problems we need government for are becoming increasingly caused by excess consumption.

We have a desperate need to move beyond Capitalism as our form of government. Democracy has been bought by Capitalism and has been rendered incompetent and impotent by an electoral system that lets money buy the votes of fools. The kind of political advertising that money buys influences the kinds of people least qualified to make intelligent choices, and the choices they've made have given us a government of fools who spend a lot of time arguing over incompetence, and getting almost nothing done.

FDR got it right and pulled us out of the Great Depression. He didn't do it with high tech, and he didn't do it with unemployment insurance or welfare. He did it with shovels and a paycheck. Paying people to not work is an absurdity. There's a lot of work that needs to get done and it's not happening. Our infrastructure is in desperate disrepair and instead of fixing the problem, we're paying people to be unemployed and we're subsidizing Wal Mart to ship our resource base to the landfill as fast as possible.

The cost of health care for people eating nutritionally bankrupt food and getting not nearly enough exercise is more than it would cost to rebuild our nation's infrastructure. If you take a look at the kinds of foods that are currently

being purchased with food stamps, the average nutritional values and price per calorie are pathetic. Instead of giving them food, give them good nutritional education, gardening and farming skills and supplies, and spend the rest of the money hiring them to redesign and rebuild our infrastructure.

When you strip away all the complicated economics, politics, and cultural mechanisms we use to organize humanity's efforts to stay alive, healthy, and happy, it all comes down to how much food, shelter, transportation, health care, and entertainment are produced, how durable they are, what they cost in energy, resources, and poisonous byproducts, and how evenly they are distributed. Our current system of capitalism has become extremely inefficient, incompetent, unhealthy, and wasteful in supplying the community's wants and needs. Capitalism, in its current form, has been subverted by unfettered greed to the point where it's become a deadly danger.

Democracy is only successful when the level of wisdom within the general community develops to the point where the electorate is qualified to elect competent leadership. The need for democracy is based on the need to control the power of kings [the rich guys]. Since Capitalism bought Democracy, the rich guys are once again the kings of the world. Unfortunately, they are so steeped in the process of capitalism and greed that they can't or won't see that capitalism is not qualified to lead and is taking us to a disastrous end.

Capitalism, in its current form, is eating us alive. It's change or die.

When we talk about unearned wealth, what we're really talking about is unearned money. Real wealth is always earned by constructive endeavor. Money is not wealth. Money is a tool for measuring wealth for the purpose of fairly exchanging the goods and services that sustain and entertain us. Unfortunately, it's easy to lie and steal with money.

When I hear it said that our financial institutions have lost half of their wealth, I find the concept dangerously deceptive. The wealth that we have lost was never in the banks. It was in the overall financial system, now so corrupted and broken. It was in the infrastructure of our communities, no longer being maintained. It was in the fossil fuels that we wasted in thoughtless gluttony. It was in the raw materials that we traded to China and the rest of the developing world that came back as the billions of tons of cheap and shoddy stuff that we threw in the dump. It was in the energy and enthusiasm of our children, wasted in trivial pursuits. It was in the wisdom of the community no longer being passed through the generations as our children become virtual orphans, left to electronic entertainment as their parents and grandparents are swept away into the rat race, or watching from the sidelines, or mired in depression, or addicted to drugs or pleasure, or a thousand miles away, or caught up in the prison system, or gone off to war, or dying of AIDS, or any of the many other reasons that children no longer spend time with their elders.

Money doesn’t keep. If it’s not invested in productive endeavors, it produces no new wealth. Meanwhile, entropy steadily consumes our old wealth. Our current global financial system has allowed almost all of our available investment money to be controlled by a very small percentage of the community, most of whom are unable or unwilling to invest it wisely, and our money is rapidly becoming worthless as we have more and more uninvested money and less and less wealth.

When money is borrowed, how it is spent determines the eventual outcome of wealth or poverty. If it is spent on the talent, tools, and materials to produce high quality, efficient, long lasting stuff, then we become wealthy. If it’s spent on lots of poor quality, inefficient, disposable stuff, then we end up with little to show for what we owe and we become poor. If it’s stolen and squandered by financial pirates, we’ve been screwed.

We’ve just borrowed a lot of money. Total debt in the United States is around fifty trillion, an amount equivalent to sixty-eight million dollars a day every day since the birth of Christ. To repay the total global debt would take around a billion dollars a day for two thousand years. This debt represents the energy and resources we've taken from our children with some vague promise to pay it back. Most of this debt has already been committed to maintaining the status quo when the laws of physics clearly show that the status quo is not sustainable.

One of the many consequences of outsourcing our manufacturing industry is that we no longer recognize the results of our consumption. Out of sight, out of mind. More and more people are losing sight of the sources of their sustenance. For years, until the great recession, about once a week another coal fired power plant came online on the other side of the world to fuel our consumption. As our children become increasingly addicted to the conveniences and pleasures of consumption made available by abundant energy, they know so little of whence it came or where it goes. In this age of instant gratification afforded by fossil energy, we tend to lose sight of the importance of long term energy investment. This is indeed a feeding frenzy that will soon be over.

Cheap is a very strong addiction. It's cheap, so we buy it and now we have it, but it's cheap, so it doesn't last very long, so now we don't have it, but we want it because it's a good thing and we've begun to design our lives around it, but we're spending so much on so many good things that don't last very long that we can't afford the initial investment to buy quality, so we buy another cheap one. The problem with this is that, in the long run, all the money we spend buys energy, resources, and pollution in one form or another and it's the long term tangible value, not the immediate price of energy that matters. Cheap is much more energy and resource intensive than quality and we'll look back at our waste of energy with great regret. It's a great sadness that we're so thoughtlessly addicted to cheap energy that we're wasting in just a few generations the energy and resources that could keep us healthy and happy for thousands of years.

Cash flow measures energy flow. How much money we spend is an easy measure of almost all of the energy we consume. It's also a fairly accurate measure of the resources we consume and the pollution we create. The many products we buy are nothing but dirt, rock, oil, and coal in the ground until the energy is expended to grow it, mine it, haul it, refine it, manufacture it, distribute it, use it, dispose of it, and deal with whatever mess it made. How much it costs, how long it lasts, what side effects it has, and how efficiently it performs determine the value of our energy investment.

Poverty makes it much more difficult to invest efficiently. The money just ain't there to buy quality and durability, so the poor stay stuck in the cheap, throwaway consumerism that, in the long run, makes us all the poorer. Excess wealth, on the other hand, makes it much easier to invest energy recklessly, foolishly, and dangerously. Our current financial and political systems have allowed immense amounts of energy to be controlled by an often ignorant, often gluttonous, very small minority, and most of that energy is squandered on incompetent schemes and opulent play.

In this world of naïve consumers, our energy investment is producing very little long term energy return. As the energy flow in our lives increases, we tend to spend less and less time enabling our sustenance [work], a lot of time thinking we're being productive when we're just being busy, and more and

more of our time consuming our sustenance [play], until the wave breaks and we crash upon the shores of reality.

Our affluent lifestyles at the beginning of the 21st Century bear many similarities to the affluence at the beginning of the 20th Century. Due to great advances in technology at the end of the 19th Century, life became comfortable for an ever increasing percentage of the population. Steam and gasoline powered tractors plowed the fields. The tracks were laid and trains were hauling many times as much freight many times as far as had been possible with animal power. The cities were rapidly becoming electrified, and factories were beginning to work two and three shifts a day. If you had a middle class job, you could own a car and a refrigerator. For an ever increasing portion of the population it was party time. The children had more and more time to play and spent less and less time with working adults. Apprenticeship rapidly declined. We borrowed ourselves ever deeper in debt as more and more money and the power that it bought began to accumulate in the control of fewer and fewer people. An increasing proportion of young adults entered the work force with little or no direct knowledge of how or why to work, much less what needed to be done, but still habituated to high rates of consumption, until the system could no longer sustain itself and collapsed. An age of prosperity has led to an age of complacency that is rapidly climaxing into an age of consequences. The difference this time around is that we have neither the energy and resource base nor the clean environment to absorb the pollution that we had the last time around.

In the short while left that we still have a competent work force, we have a serious need to drastically increase the efficiency of our infrastructure in order to cushion the fall. This will require a much more tangible and widespread awareness of the immediacy of the crisis.

When you're jonesin' for a fix, nothing works like a fix. Ask a recovering speed freak about the power of addiction and the addiction of power, and you will likely get an accurate parallel to humanity’s addiction to fossil fuels. Oil is humanity’s big fix, but, for a wide variety of reasons, it’s not sustainable, and soon we’ll be coming down. What lessons will we learn? What price will we pay? Will it be cold turkey or a slow descent into war, poverty, and misery as we squabble over the crumbs? Or will we find healthy alternatives for the power we crave? Look around you as you live your life and you will easily see that for most of us, our entire existence is predicated on fossil fuels. Even the machinery to harvest the so-called alternative energy sources is built and maintained with fossil fuels. If we have any hope at all of weaning ourselves off this addiction, the first step is to recognize the nature of the addiction and discipline our consumption.

A doubling of the lifespan of a product decreases the energy consumption and pollution of its production, distribution, and disposal by half minus increases in production costs. A doubling of the efficiency of its use decreases the energy consumption of its use by half. If we find a way to not need it or want it, then it isn't made, it produces no pollution, and consumes no energy and resources. If the goal is to make monetary profit, none of these options are profitable. If the goal is to make the human community a better place to live, all of these are necessary. We can easily increase the efficiency of consumption at least fourfold, thereby reducing energy consumption and pollution for production, freight, use, and disposal fourfold. All that stands in our way is the momentum of ignorance and greed. Greed is rooted in the fear of losing the energy that is our individual leverage against entropy. Those of us who lack courage or the senses of empathy and community, to varying degrees, tend to hoard and spend in ways of personal empowerment that are not conducive, and are often dangerous, to the survival of the community. As we gain the knowledge of population control, efficient lifestyle, and ways to use alternative sources of energy, fear will no longer sustain greed, and those of us with wisdom, courage, and sanity can enable the alternate technology and changes in lifestyle necessary to sustain us. Just some of us if we don't act quickly. Maybe none of us if we blow it.

In the advertising of the energy sellers and in the media, one often hears the phrase 'the energy we need', when the reality of what they're talking about is mostly the energy we want. It's the biggest lie we've told ourselves in a long while. The balance point between austerity and gluttony has drifted far towards gluttony, we're careening over the edge of sustainability, and we're about to crash. We're caught in a very addictive obsession with consumption.

In this age of gluttony and finite energy, waste is the ultimate crime, and needs to acquire a social taboo. When a trucker picks up a load of orange juice in California, hauls it to Florida, turns around and picks up a load of orange juice and hauls it to California; when billions of people use a whole paper towel when a half sheet is plenty; when we use twice the soap that it really takes to get it clean; when we get the morning paper and only read ten percent of it; when the car that delivers our pizza burns more fuel than it took to make the pizza; when 90% of the energy of cyberspace is frittered away in play, spam and idle chatter; when two thirds of our mail is junk advertising that we throw in the dump unread; when a simple miss-type on a computer program causes thousands of replacement parts to be produced and distributed to hundreds of parts houses and they don't fit; when billions of people leave the lights and computer on; when billions of people spend an hour at work to get the money to buy a labor saving device that will only save ten minutes before it breaks and gets thrown in the dump; when billions of people can't contribute to the community because they never learned to do anything useful for the civilization from which they draw their sustenance; when billions of people are looking for

a paycheck instead of the work that needs to be done; when billions of people measure success by how much a person can consume; it's then that we see the waste that determines our headlong rush to oblivion. The cumulative little waste that accounts for easily half of our total consumption can be addressed, but it takes the awareness of a large percentage of the population to make the difference.

Unfortunately, increasing the efficiency of our consumption will not be enough to save us. There just isn't enough time. We're far beyond the limits of sustainability. If our current civilization is to maintain enough health and energy to convert the technology that sustains us to other energy sources, we need to consume much less immediately. It's easy to talk about efficiency, but talking about forgoing any of our comforts and pleasures, or doing without some of our toys, borders on blasphemy. We have a desperate need to discipline our consumption, but comfort, convenience, and pleasure are extremely addicting. Once again, it's the addiction of power that we need to address. Energy abuse is rapidly becoming a debilitating and deadly disease for this civilization.

There are many factors that contribute to the immense waste of the current feeding frenzy that can be changed and there are alternative power sources. The energy in all fossil fuels is concentrated sunshine, captured and stored by photosynthesis. Once it's gone, we'll have to concentrate it ourselves.

There are a multitude of misguided fantasies in common belief about potential energy sources. There are, however, a number of viable options for weaning our civilization off of fossil fuels.

Without the gravity of a sun to contain it, cold fusion is probably just a parlor trick, and if it is feasible, the time frame for its development to scale is much longer than our consumption of fossil fuels will sustain us.

Mirrors in space is a nice pipe dream, but we have neither the time nor the tether.

Shale and tar sand oil extraction are heavy polluters. They produce several times more carbon dioxide and other toxins in their production than other fossil fuels. They destroy a lot of land, water, and air for the amount of energy they produce.

Clean coal is wishful thinking encouraged by the industry's need to look clean. The energy consumption and pollution involved in creating and maintaining the infrastructure necessary to clean up burning coal just causes more energy consumption and pollution and most of the pollution wouldn't really be cleaned up, it would only be swept under the rug. As we dig ever deeper into lower grade deposits, the levels of pollution will steadily rise.

Most biofuels, especially those made from corn, soybeans, sugar beets, and sugar cane, eventually even much of what can be made from switch grass or other cellulose, are made with topsoil farmed with fossil water and fossil fuel. Much of their true cost is hidden by political and environmental subsidies. As topsoil and aquifer and glacial water are depleted, this is not sustainable. Most [but not all] biofuel sources are in direct competition with our ability to grow food. Corn is probably the worst of them. GM and ADM and a lot of others

have invested billions in the technology to burn tomorrow's dinner so we can drive to the store today.

A few of the biofuels are very good additions to our energy portfolio, but I doubt that their sustainable volume is anywhere near as large as is presently assumed. We take the concentration of energy in fossil fuels very much for granted.

Algae are relatively efficient at capturing solar energy. They're a very simple organism that can live in brackish water, and the nutrients that sustain them are minimal, easily reclaimed, and readily available. The fuel derived from algae is carbon neutral and can be used directly as existing oil refinery feedstock.

Geothermal energy can contribute a bit to our energy supply and it seems to be a relatively low polluter. Energy consumption in Hawaii could probably be almost completely geothermal.

Small scale photovoltaics often require more energy consumption in their production, installation, maintenance, and disposal than the electricity they produce in their lifespan. Large arrays are more energy efficient, but all photovoltaics are fossil fuel dependent, they don't last very long, they produce a lot of toxic residue, and they're often getting in the way of cleaner, much more durable systems of solar energy gain. Solar thermal systems based on stainless steel mirrors are environmentally cleaner and, with maintenance, could last for many thousands of years.

By a wide margin, the most efficient investment in solar energy is the direct, on site heating of water and living space. Passive systems tend to be much more long-term efficient and dependable than active systems. Keep it simple. Money can't buy a better solar water heater than some recycled water heater tanks and some recycled glass.

Glass and stainless steel mirror are good energy investments. They're the key to most of our solar energy potential.

Our estimates of fossil fuel reserves substantially underplay the diminishing efficiency of deeper and lower grade deposits and the increased production of pollutants needed to exploit them. The amount of oil burned and carbon dioxide and other pollutants produced to pump and process a barrel of oil is steadily increasing and, if we're foolish and desperate enough, will eventually approach the point where it takes a barrel to produce a barrel. The ever increasing environmental costs of extracting and refining fossil fuels are not sustainable.

The investment in alternative energy sources for transportation in anticipation of the end of oil is focused on personal transportation and it seems like a problem we can engineer ourselves out of, but oil hauls the freight. All of it. In the developed world, everything in our daily lives comes to us on a truck or a train or a ship or a plane. We haul more freight every hour than was hauled in the entire nineteenth century. We'll haul more freight today than was hauled by all the humans that ever lived before the 20'th century, and most of it is in the dump within a few months. Per capita, we haul about a half a million times more each day than a person who lived before the industrial revolution. To think that we can or should spend the fossil energy to convert our entire freight

system to some mystical alternative energy source in order to continue a very dangerous addiction to consumption is madness. We'll soon be hauling much less freight and we'd best be ready.

The most accurate place to measure our gross domestic product is at the entrance to the landfill. It is fast becoming the place where most of the world's natural resources are. Unfortunately, they are so fragmented, polluted, contaminated, and homogenized that reusing or recycling them is too energy intensive to be practical.

Present systems of recycling are very energy intensive. In most cases, primary manufacture consumes less energy than recycling. The focus of recycling needs to change from remanufacture to reuse. In order to do this we have an immediate need to redesign primary production to enable products and their components to be reused. The energy savings and pollution reduction of reuse versus conventional recycle are as much as 90%.

In the meantime, for those of us not involved in industrial design, there is plenty that we can do. First and foremost is to buy less and buy quality. It will soon become obvious that cheap and disposable has been a very disabling addiction for the human community. Since the current economic system has let quality fall through the cracks, reestablishing feedback between consumer and producer will be necessary if we are to have anything of quality to buy.

Next is to prepare the infrastructure of the local landfill for a system of local reuse and recycle. In the past, waste disposal was simple and straight-forward. Their was plenty of room out back. Out of sight, out of mind. There was lots more where that came from. As population density increases and the toxicity, volume, and durability of our waste multiplies, and as resource and energy reserves decrease, it takes more and more energy to keep the waste stream flowing and keep it out of sight. In places of great poverty, the waste pile is picked clean of reusable and recyclable material. In places of great wealth, no one bothers. In places of more even polarization of rich and poor, the poor are usually prevented from scavenging, driving them even deeper into poverty. As we consume the last of the energy and resources that afford us our convenience and comfort, if we fail to get organized with our efforts to reuse and recycle, an ever increasing portion of us will eventually end up in poverty, scrounging the dumps because that's where the resources are. We have many opportunities to avoid such a fate, but, as for anything worthwhile, it will take awareness and effort.

Glass bottles are too heavy to efficiently haul back to the bottling plant or glass factory unless it's quite close, so bottling plants need to be local. Crushed glass makes better concrete than crushed rock, but, as with most methods of recycling glass, the process is presently compromised because every bottle has a label. A first step would be to require water soluble glue, but because of the toxic inks and binders that the labels are made of, a redesign of the labels themselves is the next step and the discontinuation of labels on individual bottles is better yet. Not drinking the unhealthy, addictive junk that comes in most of them would be best.

Most of the plastic we manufacture is used for frivolous play. The bottles are mostly full of sugar and water. The children's toys are quickly in the landfill and teach little but the culture of consumption.

Aluminum cans are mostly recycled, but the process relies on a lot of fossil fuel. The large majority of aluminum cans contain either addictive, unhealthy drugs [alcohol or sugar-caffeine combos], or frivolous tongue toys [since diet sodas contain no calories, vitamins, or minerals, they're not even food]. The sinister joke of artificial sweeteners is that they increase appetite. Let's overcome some bad habits.

Present recycling of cars and trucks is to crush them, haul them, shred them, and then sort out the crumbs. This is an extremely energy intensive and toxic process. If cars were designed to be simply disassembled at the end of their useful life, their usable components reused, and the rest recycled or remanufactured, then the energy consumption and toxicity of their production and recycle could be very substantially reduced. The primary impediment to this is the lack of design for easy disassembly. The second impediment is the lack of generic parts. The third impediment is the lack of quality parts. The redundancy of individual component design and manufacture could easily be reduced by 90%, with substantial increases in quality, durability, safety, drivability, and environmental cleanliness.

Since every dime we spend buys energy, resources and pollution, the easy measure of a car's environmental impact is total cost per mile, including much of the true costs of driving that are hidden in the future.

The evolution of the automobile over the last hundred years has been the cumulative effort of millions of people, each with their own skill sets. Early on, it was the tinkerers and inventors who created the car, but as the size and complexity of the automotive industry increased, the innovation has gradually shifted from invention to engineering. The result has been the mindless repetition of thousands of different starters, alternators, engines, transmissions, brake systems, heaters, fuel injection systems, windshield wipers… Amongst all these different designs, some work well, some don't. Some pollute more, some pollute less. Some are durable, some are not. If we take the top one percent most cost effective systems and retool to produce the best, we could drastically reduce the environmental impact of the automobile. If automobile components were generic and of the highest quality, we could cut the cost of driving by about half.

There's a balance and a compromise between environmental cost and performance. Only a few component designs are good at both. The most efficient, durable, drivable engines have been the straight sixes. The simplest, strongest, most durable, best performing suspension is the 1950's vintage Volkswagen Bug. The carburetor can once again be the best gasoline fuel system if we make it jetless. Generic lighting systems are cheap and durable. You can build a complete system from generic parts at the local parts house for less than the cost of an average taillight lens, and they are much stronger and more dependable. A further evolution of 1950's race car style tubular steel cage, aluminum skinned bodies could put most ambulances out of business. The

1960's vintage Volkswagen Buses had the strongest, safest front bumpers because they were round and well connected to a good crush zone. Just don't hit anything above the bumper.

The complexity of the automobile has increased exponentially through the years. Today's cars have thousands of times more parts than a car from the 1950's. Since their overall cost of driving is an accurate reflection of their environmental impact, it's obvious that new cars are no more environmentally friendly than the best of what we had sixty years ago. They produce less noxious tailpipe gasses and particulates, but they produce much more other toxins, mostly in their manufacture and disposal. The most talented older mechanics drive refurbished and redesigned old cars and look upon much of new technology with distain.

The costs of vanity surrounding our personal transportation are immense. Easily half of our true driving costs are about fashion. Frivolous fashion is an addiction we can ill afford.

Looking ahead, we need fundamental alternatives to the massive inertia of the automobile industry. The primary departure needs to be a move away from the completely sheet metal, frameless body. The present obsession with the slow crush, spot welded, sheet metal body to protect the occupants has fundamental flaws. It has very little real strength compared to a tubular steel body cage with the crush zones around it. This change alone could eliminate most crash injuries and almost all deaths. Not just to people, but to the cars themselves.

Instead of crude seatbelts, the seat itself should protect the occupant. Single shoulder belt seatbelts severely twist the spine in a front end collision. Airbags are an absurdly expensive, unreliable, and ineffective alternative to a seat that contains and restrains a person's body. The trick to a safe seat is in its ability to decelerate at a survivable rate. The trick to an accepted and convenient seat is ease of use.

Carbon fiber composites suck. We won't find this out for a hundred years or so when the resin and plastic binders degrade and release the highly toxic and very durable carbon fibers into the general environment.

Our obsession with high tech has drastically increased the environmental impact of contemporary personal transportation. This won't become evident until we recycle them. Throughout the high tech industry, the pollution of their recycle and disposal is poisoning millions of people, and will continue to do so for the foreseeable future.

Throughout the automotive design industry there is a strong flavor of cocaine. Just because you can doesn't mean you should. The technology to build cars that are many times more environmentally friendly has been available for many years. The problem isn't technology, it's our vanity, our obsession with speed, and our dependence on a capitalist system that forces competition instead of cooperation.

Current automotive insurance and registration laws seriously inhibit the specialization of vehicles necessary for efficient driving. Everybody knows that liability insurance should cover the driver instead of the car, but few people see the real waste and pollution caused by current laws that coerce the poor and

middle class into driving compromised, inefficient, one size fits all vehicles. The cost of registration and insurance is often the reason we drive the SUV or pickup because it's not cost effective to keep a second efficient little commuter car. The cost of the bureaucracy is more than the cost of extra fuel. Because they influence consumer buying trends, current automotive insurance and registration laws are a major detriment to the production of efficient cars.

For a large percentage of the community, it's not cost effective to commute to work in the snow. The cost of the time, energy, and resources involved in driving is greater than the productivity of the work. The snow plows, the salt, the extra fuel, the rusted and broken cars, the body shops, the insurance companies, the hospitals, the doctors, the lawyers… The wasted time and energy isn't worth what gets done on the job. Relax. Take some time to play in the snow.

When you figure the time we spend on personal transportation [working to make the money to buy a car, fuel it, insure it, maintain it, repair it, recycle it, repair the environmental damage it causes, and pay the medical bills associated with the pollution, stress, and sedentary lifestyle it causes, as well as actual driving time], in relation to the miles we drive, except for the open highway, it's much faster to cycle, skate, or walk, and avoids the associated energy consumption and pollution almost entirely. The primary reason we tend to motivate ourselves as much as possible with fossil fuels instead of human power is that we think we don't have time to go any slower, when we're really just driving around in circles.

At the present time, we have almost no roads for human powered transportation. Bike lanes are better than nothing, but they're dangerous and envelope you in car exhaust. Very few people use them. Separate roads with separate lanes for pedestrians, rollerblades, and cycles would dramatically increase the use of human powered transportation. A consumer tax on bicycle sales to build independent bike paths and roads for human powered transportation would surely help. A tax on energy consumption for the same purpose would be much faster, but would meet with much more ignorant resistance amongst voters. Increased awareness of the true cost of driving is necessary to facilitate the conversion to a sustainable personal transportation system.

The human energy wasted on exercise machines that produce nothing but waste heat and the pollution and energy consumption of their manufacture, to no purpose but burning calories in order to not get weak and fat, might produce enough electricity to keep the lights on while you exercise, but could be much better spent doing something useful. In competition with fossil fuel powered machines, one human power seems insignificant, equivalent to about a tablespoon to a cup of oil an hour, depending on the machine and the task at hand, but it's readily available, it's compulsively renewable, and it's necessary for the health of the human body.

Pedaling a bicycle is a very inefficient motion for the human body. It utilizes only a small percentage of the human musculature. The motion that enables the most sustained energy output from the human body is rowing

because it utilizes the most and largest muscle groups. With the simple addition of a connecting rod, the circular motion of pedaling is converted to the linear motion of rowing and now you can put your back into it and make some speed. The motion of rowing can easily be integrated into current bicycle and hybrid technologies. If we carpooled and exercised on the way to work, we wouldn't spend a dime on fuel. With simple, currently available technology we can build human powered monorail systems that would be much faster, cleaner, healthier, and cheaper than any mass transit system currently in operation. In traffic, with pressure sensors in the front and rear airbag bumpers, you could swipe your card and pay or be paid according to how much exercise you cared to get. If the fast lane was open, I would guess that four people working together could sprint across town at close to 100 mph.

As the forces of nature become more extreme, we need to be ready to harvest the aftermath of the destruction. Hurricanes, tornados, windstorms, drought, and forest fires leave behind immense amounts of potential lumber, but it's only harvestable for a very short time. Mobile sawmills need to be ready. Hurricane Katrina probably blew down enough timber to rebuild Mississippi. Almost all of it went to waste. Forest fires kill enough timber to rebuild the nation. Almost all of it goes to waste. Much, and sometimes most, of the building materials left over after a natural or human related disaster are reusable. All it takes is some human energy and a bit less vanity.

The aquifers and glaciers that sustain about two thirds of the world's agriculture are very rapidly depleting. Many may be dry within one generation; many more within a lifetime. Our supply of topsoil is doing much the same. The levels of urban, suburban, and industrial poisons in the floodwaters that flood our riverside farmland pose a long-term health risk as they increase the background levels of poisons in our food. As the climate goes through a time of great turbulence, monocrop agribusiness will become much less effective and much more risky as it becomes ever more vulnerable to disease and steadily consumes the fossil water and topsoil that grow our food. As the oil that we consume to haul food around the world becomes scarce, the evolution of agriculture will become much more local. The need to know how and what to plant where and when will soon be of great importance. The knowledge of farming and gardening will need to be revived and proliferated. We need to convert much of our time and energy and water use away from ornamental plants to plants that we can eat. Plants that we can eat have a much more elegant beauty than ornamental plants. Build soil, foster diversity, and plant as many good seeds as you can.

As the oceans warm and precipitation increases, it's currently mostly warm snow that quickly melts or it's heavy rain, much of which falls on pavement, resulting in flooding rather than the steady melt through the spring necessary for agriculture. We need to utilize different systems for capturing, storing, and using water. Lakes are a very inefficient means of storing water. They're mostly not nearly big enough or numerous enough to handle the volume of contemporary floods. The shallower the lake, the greater the evaporation rate. Increasing the number of lakes only exacerbates the problem. Underground

storage has little evaporation, very high capacity, it doesn't leak, it's cheap, and it’s complete and ready for immediate use. We need to think big for this one. This will take a bit of manpower and, for most folk, a leap of faith. Major streambed restoration is necessary to slow the runoff and allow it to penetrate and refill the aquifers, where it’s very efficiently stored and readily available. Let’s start at the headwaters and meander the streams to hold back the flood waters and put some water back in the wells. Let's clean up the streets so the water we put back in our wells and reservoirs is clean.

There are a number of power sources available that are not in current use because they are intermittent and there are very few systems in place that can use intermittent power. Current research is focused on developing ways to store energy, but using power when it’s available is much cleaner and more efficient.

Solar is rhythmic. Overnight storage of solar energy substantially increases its convenience and usefulness, but it requires the energy, resource consumption, and pollution of the storage system. Trough mirror solar systems can run 24-7 because the hot oil can be stored for later use. The automotive industry is finally moving towards fully electric cars. This will eventually be most of our available electric storage capacity. We can recharge our electric cars during the day with solar. The current pervasive mindset of a car that does it all is an extremely inefficient compromise for an electric car. If we are to substantially increase the efficiency of transportation, we need more specialized vehicles. The appropriate niche for fully electric cars is very small, very sporty commuter cars.

Wind is intermittent, but predictable, and is often available to recharge batteries and pump water uphill for hydroelectric at times of low consumption. It is rapidly proving itself to be efficient when buffered with a variety of other energy systems, although currently it can’t use the massive power of storm winds and most of its infrastructure is built with fossil fuels and poisonous carbon fibers.

Even the immense power of floods is predictable and harvestable. With a bit of cooperation and planning, we could time much our activity and industry to use power when it’s available. We can learn to use focused power.

Two of the very few things of high value we know how to produce that last just about forever are stainless steel and plutonium. We also know how to use the plutonium to poison the stainless steel. The stainless steel poisoned in a nuclear power plant would make enough mirror to supply thousands of families with a solar kitchen that would cook dinner for thousands of years. The stainless steel poisoned in a nuclear power plant would make enough mirror to build a solar power plant that, with simple maintenance, would last many thousands of years. In the immediacy of the moment, harvesting solar energy is less convenient, but stainless steel lasts just about forever and the pollution involved in it’s manufacture lasts just a few generations, while a nuclear power plant lasts just a few generations, but its pollution lasts just about forever.

A lot more people need to understand that nuclear energy, the most concentrated energy we’ve found ways to use, is quite precious, but is currently a very long term risk and a very short term solution to our bulk energy wants

and needs. Contemporary commercial nuclear power violates two of the basic rules of gambling; don't bet to bad odds and don't bet more than you can afford to lose. You can learn all the basics of state of the art technology for the disposal of an obsolete or disabled nuclear power plant by watching a cat take a crap. Every nuclear power plant will need to be dispersed or contained for many centuries. The ones that use plutonium will need to be contained for many ice ages, and the ones that fail will poison everything nearby for at least centuries. In Japan this already means a substantial portion of their best farmland. We have committed ourselves to a formidable task. It will take an awesome amount of resources and energy just to get some concrete over our derelict and damaged nuclear facilities that will only last a few hundred years. We haven't even covered Chernobyl yet. Many of our nuclear power plants will become festering zits on the face of the earth for several ice ages [except for the ones that get ground up by the glaciers and become poisonous smears]. Both short term and long term, levels of background radiation will steadily rise. We've poisoned ourselves and now we have to live with it. It's a strange irony that the increase in radiation exposure will force the increase in mutation rates that will allow us to adapt to a more poisonous environment. The land given back to nature around Chernobyl is our first experiment in life with high levels of background radiation.

A way to help clean up this mess is to find better ways to harvest the very substantial energy still left in spent nuclear fuel. One method for reusing spent fuel rods is already in pre-production development in Germany.

Most of the real cost of coal is hidden in the future.

Fracking is a flash in the pan. The rate of production decline in a fracked well is much steeper than initially expected. It's not like a pool of oil or a pocket of gas. It's just a bunch of rock that soaked up some oil or gas. The energy and pollution costs of fracking make it a very dirty fuel.

Tar sands are one of the filthiest, most financially and ecologically inefficient fuel sources we've ever used.

Contemporary commercial nuclear power violates two of the basic rules of gambling. Don't bet to bad odds, and don't bet more than you can afford to lose. The total cost of the impact on the community and the "clean up" of Fukushima will be well over a trillion dollars. Every dime of that trillion dollars will be spent on energy, resources, and pollution. In the end what they call "cleaning up" will be nothing more than burying it. You can learn all the basics of the nuclear industry's plans for disposing of their old facilities just by watching a cat take a crap. Considering state of the art technology for decommissioning a nuclear plant, it's likely that many of them will end up spilling their guts as they become old and obsolete. In its present state, nuclear energy is an extremely expensive, inefficient, and dirty fuel.

Technology is almost ready to harvest another round of energy from spent fuel rods. This holds great promise to salvage the nuclear industry and makes the construction of any more first cycle nuclear power plants obsolete and reckless.

Wind power is proving itself all around the world. The technology has come of age. They're relatively clean, as long as they don't use carbon fiber composites. Carbon fiber composites are a ticking toxic time bomb.

Of all the alternative energy sources, photovoltaic is amongst the least long term efficient. They're fossil fuel dependent, they don't last very long, and are toxic to produce and recycle.

Concentrated solar thermal systems are more expensive up front and are best suited only to large scale installations, but their durability makes them very long term efficient. With maintenance, they could last for thousands of years. The parabolic trough and hot oil or salt tube systems can run twenty-four seven and don't kill birds. For the moment we have more and more desert to put them in as climate change creates ever more desert.

The brackish water and plentiful sunshine of most of the world's oil fields have immense potential for growing algae. Many oil fields are in the desert and the wells often have to deal with brackish water and low grade natural gas. Algae can live in brackish water, and can eat low grade natural gas and convert it to oil. Since oil from algae can be used as is in oil fired power plants and existing oil refineries, almost all the infrastructure is already in place. It's carbon neutral and can, to a large degree, maintain itself. Most importantly, it can be

used in the oil dependent infrastructure that hauls all of our freight. The technology is still evolving, but it looks good so far.

Water turbines in the deep ocean and tidal currents show promise. It's a very stable power source.

By far, the most efficient uses of solar energy are on-site passive heating and lighting systems. They're a bit fossil fuel dependent as glass is made with fossil fuel, but their efficiency far outweighs the cost.

One of the largest consumers of energy, resources, and pollution is fashion. Over half of the total cost of driving is fashion. Over half the production of the clothing industry is due to fashion. Two thirds of the makeup women wear really makes them look like tacky plastic. Fashion is a major consumer throughout global industry. At this stage in the life of this civilization, fashion is a frivolous addiction we can ill afford.

This brings us back to the big lie at the heart of our energy addiction. "The energy we need". It's central to the energy industry's sales pitch and it's a lie we've accepted to hide our addiction. Very little of the energy and resources we consume and the pollution we produce have anything to do with survival. What we "need" them for is frivolous play.

In individual addictions to substances like cocaine and heroin and the hundreds of other drugs that the pharmaceutical industry pushes, the benefits are immediate and the unhealthy and dangerous side effects are delayed, so it's a community awareness that keeps the addiction confined to a small proportion of the population. In the case of this civilization's addiction to capitalism, the dangerous and deadly side effects are just beginning to manifest, and we have no precedent with which to see what lies ahead.

In the latter half of the 19'th century, the population explosion after the Civil War spilled out into the vast expanse of the Mississippi River Basin. Out on the Great Plains the rich from around the world invested in the railroad that let them harvest the buffalo. When the buffalo were gone they replaced them with cattle. The poor folk took their 160 acres and tried to make a go of it. Their most important tools were a pair of horses [one horse wasn't strong enough to break the sod] and a plow point [the hardened steel tip for a wooden plow]. Where the railroads met the Mississippi, cities grew, and they plowed the river basin to grow the food for a rapidly increasing population. Out on the plains the farmers with the best land prospered. Horses were gradually replaced with tractors and ever more grassland was plowed into wheat fields. During WW1, the price of wheat was subsidized because we were feeding much of the world at war, and production increased as fast as they could build tractors. After the war the subsidies disappeared, and the price of wheat dropped to the point where the only way to make a living farming wheat was to increase production. They plowed under ever more of the Great Plains until there was far more wheat than there were people to eat it and the price of wheat dropped to almost nothing. Meanwhile, cattle grazed the grass on the dryer portions of the Great Plains shorter and shorter.

Then the local climate changed just a bit and most of that plowed land blew away. It only took a little more than a half century to turn much of the Great Plains into a dust bowl. Those with the money to stick it out or take it over turned to new developments in wells and pumps, and now the Great Plains are green with the water from the Ogallala Aquifer. When we pump it dry, what will become of the Great Plains?

When the westward expansion reached the Rocky Mountains, rich and poor alike harvested the timber, the metals, the beaver, and the water. Without the timber and the beavers, life in the valleys was washed away, and the runoff from the mines poisoned much of what was left. When the pickings got thin, the expansion moved on to the oilfields of Oklahoma and California.

Meanwhile, in California, the gold rush brought in men from all over the world. As the money brought in by all that gold built San Francisco and a lot of smaller towns, they plowed California's Central Valley to grow the food for a rapidly increasing population. California's Central Valley was a vast expanse of marshes and grasslands. It only took a century to turn one of the world's most verdant wetlands into a vast expanse of dry and dusty plow pan.

"After crossing the river we entered a large vineyard of wild grapes and an infinity of rosebushes in full bloom. All the soil is black and loamy, and is capable of producing every kind of grain and fruit which may be planted. We went west, continually over good land well covered with grass" Father Juan Crespi, 1769. The Los Angeles River Basin was excellent farmland. In the first half of the 20'th Century they built canals from the Colorado River and the Owens Valley, and the valley was soon covered in hay, grain, olives, citrus,

avocados, and all manner of other crops. The L.A. basin became one of the most prolific agricultural Edens in human history. After WWII, Los Angeles began to fill in with people, and by now almost all of the entire Los Angeles River Basin is paved.

Climate change and human degradation are rapidly decreasing the amount of land available for agriculture. Much of what we rely on now is critically endangered by Monsanto's herbicide and pesticide dependent monocrop GMO. Much more is dependent on rapidly depleting aquifers. Many of the world's aquifers are poisoning farmland with salts. The runoff from flooded cities and industrial factories often ends up on farmland, covering them with a very toxic sludge. Throughout the world, much of our farmland has been blown away, washed away, poisoned away, and harvested away, but a substantial amount of the best has been paved over. Most big cities evolved outwards from the most fertile land. We need to unpave our best farmland.

If we clean up the streets, they're an excellent way to concentrate the rain and snow. It's always greener alongside the highway.

Falling like the Romans

As the evolution of humanity spread out of Africa, they bypassed the dense jungles of the western tropics and the desert to its north, and followed the Nile into the incredibly fertile Middle East. Around 8,000 BC the Sahara began to get rain, and gradually turned to savanna with numerous rivers flowing into the Nile and the Mediterranean. A gradual migration spread across the Sahara. They learned to farm and grow grain, but eventually the rains diminished and the population migrated north and south. To the south they gradually returned to the hunter gatherer lifestyle suited to the wet tropics, but to the north they were able to maintain a thriving agriculture in a climate well suited to growing grain. By the time the Roman Empire came along, they had sufficient surplus to export, and eventually supplied most of the grain and other crops consumed by the Romans; but the desert gradually pushed them ever closer to the Mediterranean coast, poor farming methods bankrupted the soil, and the surplus disappeared. By the 4'th century AD, famine began to spread in the Roman Empire.

Climate Change is beginning to put a very substantial damper on our contemporary civilization's ability to feed itself. The steadily increasing droughts, floods, hotter summers, and colder winters are resulting in an ever increasing amount of crop failure, and our overwhelming dependency on the sterility of GMO mono-crop agriculture renders us extremely vulnerable to catastrophic famine.

Three or four thousand years ago there was a lot of tin and lead lying around and people gradually learned their uses. As the Roman Empire developed, they found that lead was useful for lots of good things and was integral to much of the infrastructure of the Roman Empire. If you melted it with tin you got a very malleable metal that melted at a very low temperature [pewter]. If you boiled young wine in a lead pot and added a little vinegar you got a condensed sugar with lead acetate {sugar of lead}. Plumbing, roofs, paint, kitchenware, tableware, containers, cosmetics, preservatives, sweeteners; the Romans used a lot of lead. In the first few centuries AD, production was up to about 4 kilograms per capita.

Today, we avoid lead in our lives because we know that lead is poisonous, but few Romans had the wisdom to connect lead with the many toxic symptoms of lead poisoning. If you were well-to-do, you came home to a house which may have been painted, caulked, and roofed with lead, and sat down to a dinner made in lead pots, with wine made and stored in lead containers, and a dessert sweetened with sapa [sugar of lead]. You drank and bathed in water from lead lined reservoirs and lead pipes. In the morning, you put on lead based makeup. Depending on the wind, you breathed smog from the lead ore furnaces and foundries.

The aristocracy consumed about 7 times as much lead as the plebeians, and about 16 times as much as a slave. For the slaves and plebeians, this wasn't particularly dangerous, it was actually less than the average contemporary American, but much of the aristocracy of the Roman Empire was ingesting

around 250 mg of lead a day; not enough to cause substantial, immediately noticeable lead poisoning, but enough to cause lower fertility, decreased mental acuity, increased insanity, increased health problems, and higher mortality amongst the ruling class. This led to a gradual but steady decline in the competency and sanity of government, with a corresponding increase in corruption.

The unknown poisons of contemporary civilization are much more numerous than the lead poisoning of the Romans, but the overwhelming subtle poisoning of those who manage and guide our civilization is selective Birth Control.

In 54 BC, Julius Caesar invaded Britain with a force of 27,000 soldiers. Over the next few hundred years the Romans conquered all of Britain, but it took many times that many troops to hold it against ever increasing guerilla war from numerous tribes and invaders, and by 410, they abandoned any official presence in Britain. Overall, their investment in the endeavor had a very negative return on investment and was a substantial drain on the Roman economy.

At it's height about 200 AD, the Roman Legions numbered almost 200,000 and the Auxilia another 250,000. The Roman Legions were well paid, professional soldiers. They were spread out all over Europe, North Africa, and the Eastern Mediterranean, fighting off a variety of barbarian incursions, but most of the standing army was at home training and maintaining, as well as policing and building infrastructure. Their version of the army corps of engineers was large, skilled, and busy. Big and strong as the Roman Army was, due mostly to overextension and poor governance, they were gradually losing ground to the barbarians.

Our contemporary investment in warfare is also having a very negative return on investment, and the barbarians of Radical Islam, Corruption, and the Radical Right are steadily encroaching.

In 535 AD, Krakatoa blew so big they could hear it in China. That same year, Ilopango Caldera in Central America did much the same. The ash cloud that covered the earth was so thick that the ensuing cold, crop failure, and famine was global and lasted for many years. Famine leads to plague, and a few years later the Plague of Justinian spread across the world and persisted for several centuries.

Life on the entire planet packed up and headed toward the equator. For the Romans, this meant a sudden increase in an already extensive encroachment of the barbarians from the north. Their overextended and incompetently deployed army was steadily pushed back, and the Roman Empire gradually dissolved.

The coming famine and plague facing our contemporary civilization is due to climate change on a scale exponentially greater than the results of Krakatoa.

The fall of the Roman Empire was a very gradual event, with a variety of causes, but the underlying theme was one of complacency. Things change, and bureaucracies don't.

In our contemporary global civilization, we see a very similar complacency, and a similar lack of change and competency in our systems of commerce and government.

The problems facing contemporary civilization are exponentially greater than anything the Romans had to deal with, but we have something the Romans didn't. We have the internet. We have exponentially more knowledge available to the general public. The problem is that availability means nothing to those who choose not to use it. In the world today we see a multi-polar polarization in our approach to knowledge. There are those who know enough to know that they don't know what they don't know, and they're curious. There are those who don't know that they don't know what they don't know, and they're clueless. There are those who don't want to know what they don't know because they're cowards. And then there are those who think they know, but what they know ain't so.

The latter half of the 20'th century produced a rise in comfort and leisure that has produced a complacency that is quite dangerous.

There are only a few likely scenarios for the culmination of the current human population explosion.

The fundamental reason for the demise of a civilization is not the number of people, but how much they consume relative to how much their environment can sustain. Reducing population without reducing consumption doesn't help. The momentum of Capitalism has taken us far beyond the sustainable limits of our environment, and some kind of a collapse is imminent. It's no longer a question of whether the shit hits the fan. It's a question of what we do with the fertilizer on the other side.

It's time to lay the groundwork for building a new civilization.

Most of the countries of the world have the best government that money can buy and it sucks. We call ourselves a democracy, but we call the system that sustains us democratic capitalism, and we call ourselves consumers as we buy a lot of cheap crap to throw in the dump. Capitalism has failed us miserably, just as it did in the 1930's. Our infrastructure is pathetically dilapidated, the stuff in the stores is very energy, resource, and pollution intensive cheap crap, most of the money is in the hands of cunning fools who aren't spending it on the health of the community, and capitalism is doing nothing about it. Unregulated capitalism got us into the Great Depression. It certainly wasn't capitalism that got us out. It was socialism that put the people to work building the infrastructure for producing the wealth that enabled capitalism to function again.

We need a new system for organizing community energy. If we wait for government or the marketplace or some people called 'they' to fix it, it ain't gonna happen. Human energy is the most wasted resource on the planet and capitalism and government are channeling very little of it into constructive endeavor. Don't wait for government or capitalism to save our asses. Get to work. Much of the work needed to sustain a comfortable community doesn't really need much community planning, it just need someone to do it. Most of the community is too busy watching a screen or playing with toys to get the work done.

In times past, when survival was firsthand, most of the work was done without the involvement of money. Everyone pitched in, slackers were dealt with openly and quickly, it was easy to see what needed to be done, the work got done, and the community gained leverage over entropy. In comparison, capitalism is an inept and inefficient system. Capitalism worked well in the age of plentiful energy, seemingly endless resources, and lots of room out back to take a dump, but that was then and this is now.

In the midst of the feeding frenzy of cheap energy and big business, we've forgotten the underlying purposes of work. No one is pulling the weeds. Instead we poison them, Monsanto style. When times are hard, instead of getting the work done, we demonstrate in the streets because we can't buy more cheap crap to throw in the dump. When I see thousands of people demonstrating in the

streets, I visualize what their community would be like if they were all at work growing the food and maintaining the infrastructure that sustains them.

When we demonstrate against the government, we are complaining about where the people we elected are taking us, but the candidates were largely chosen by capitalist money and elected by the money that sways the votes of the most ignorant of voters. Once they're elected, they're surrounded by the money of capitalism. Capitalism is the real government, so money is the real vote. So vote with your money. Be aware of where your money goes when you spend it. Show your neighbors where the money goes. Don't tell them, show them.

Carrying Capacity

In all of human history, the growth of the human population has been almost continuous with occasional precipitous drops. In recent times the human population is so large that even catastrophic losses of life such as the tsunamis in Indonesia and Japan cannot counter the steady increase in global population for even a few days. Unless we do it ourselves, it will take a major deadly pandemic or the total collapse of a civilization to counteract the relentless growth of the human population toward the edge of catastrophic starvation, misery, and oblivion.

Population increase, climate change, pollution, waning energy supplies, and water and soil depletion are beginning to substantially decrease our available arable land. Our ability to feed ourselves is in immediate jeopardy.

In the past we see the rise and fall of a multitude of civilizations that outstripped the carrying capacity of their environment and perished. Each time, the remnant population either regrouped or picked up the pieces and moved on till they found fertile ground upon which to build a new civilization. Or not.

Suddenly we find ourselves facing the imminent collapse of humanity’s first global civilization and there’s no place to move on to. Our chances of stopping the momentum of consumption in time to avert catastrophe have long passed. I see no attainable way of averting the drastic reduction in human population coming soon, but there is much that we can do to mitigate the damage and prepare for the rise of a new civilization. It's no longer a question of whether the shit's gonna hit the fan. It's a question of what to do with the fertilizer on the other side. The time for talk is just about over. Let’s get to work.

In Siam, if you wanted to build a seaworthy boat, you went to the forest, brought back some suitable trees, and sank them in the harbor in exchange for the ones your great great grandfather put there. Wood cured underwater for a hundred years made a much more watertight and durable boat. The building of a quality boat required a sense of future and a sense of responsibility that spanned many generations.

In the foothills of the Himalayas they build beautiful sturdy bridges by guiding the roots of live trees. It takes thirty years to build a bridge, but it should last for around five hundred years.

Much of human civilization has been built with endeavors that spanned generations. How much of the infrastructure of our current civilization will endure for future generations and still be useful? Human civilization is currently very dependent on a complex interplay of non-sustainable technological infrastructure. A breakdown of any one of many parts of a system can break the entire system. Cheap stuff is only cheap when energy and resources are plentiful. Cheap will not get us through the coming crisis. Quality, durability, and simplicity will.

Most of the contemporary fossil fuel dependent tools of eating such as cars and grocery stores, trucks and warehouses, more trucks and harvesters, tractors and plows, and manufactured soil and seed, will pass away with the end of oil, but we'll have plenty of knives and forks and spoons through the ages because they're made of stainless steel.

On September 1, 1859, a solar flare hit the earth with enough energy to disable half the world's telegraph system. Were we to encounter another such event, how much of our global power and communication infrastructure would be damaged. It could mean the immediate and brutal end of contemporary civilization. Solar eruptions are common on the sun, and it's only a matter of time and chance till we get hit by a big one again. We need to protect the power grid. If it turns out to be an expensive fix, don't gripe about the bill. There's too much at stake to gamble on this one.

The industrial and chemical revolutions have exponentially increased the number of poisons that we come in contact with in our daily lives. While no one particular substance is likely to kill us outright, the cumulative effect of so many physical stressors is rapidly destroying our health and comfort. This is not going to get better anytime soon, so we'll have to adapt and live with the environment we have created, but we need to stop pouring poisons into the only environment we have. When you buy a toy, do you think about the poisons associated with its manufacture, use, and disposal? Will we steal the health and happiness of our children to buy toys?

We will run out of fossil fuels. Those who dispute this haven't done their homework and are engaged in some very wishful thinking. The obvious goal if one believes in future is to make fossil fuels last as long as possible while we develop alternatives. Our addiction to abundant energy makes it tempting and

easy to not acknowledge just how precious and fleeting fossil fuels really are, but not recognizing the nature of our addiction will prove to be a painful and deadly mistake.

Much of the cheaply constructed and fossil fuel dependent infrastructure of global transportation and communication will soon become non-functional and non-replaceable, but there should be enough left to sustain a global community of some sort as we begin to build a new civilization. If we can maintain it, the internet has the potential to fundamentally change the nature of the rise of a new civilization. The comprehensive and immediate access to information allows us a potential for adaptation and change never before available, but knowing what to do is worthless without knowing how to do it. We have a dire need to understand the difference between work and a job. Work is action that provides us with our sustenance. The common contemporary definition of a job is action that provides a paycheck [a license to consume]. Few people actually see the end results of their labor, and the reward of a paycheck is generally seen as the only reason to work. If we are to avoid catastrophe, there's a lot of work to be done that has no immediate monetary reward, and many, if not most, of the jobs that currently result in a paycheck are worthless or counterproductive to the long-term happiness and survival of humanity.

If we wait for a paycheck to motivate us to get to work, it ain't gonna happen. Just as in the financial crash of '29, the money has gone to the top, and they're investing very little of it in jobs that create durable wealth. Money doesn't keep. If it's not invested in creating new wealth, entropy steadily destroys old wealth until we're poor and the money is meaningless. All the money in the world can't buy what never was made to replace what was so cheaply made that it's already in the dump. Do we wait for disaster to motivate us, or do we have the foresight and courage to change our behavior now in order to avoid the pain that will ensue if we don't? No one has any excuse for sitting on their butt when there's work to be done. Unemployment is no excuse for not getting the work done.

As our lives become exponentially more cluttered by the complexity of modern technology, we tend to become so overwhelmed by the demands and distractions of the day, that we lose sight of what we need for the long run. We are rapidly losing our sense of future. We've chosen convenience over quality, comfort over courage, and toys over tools. Our foolishness is about to come full circle and bite us in the butt.

Community

From its earliest evolution, the human species has been dependent on community. Community survives when individuals don't. Community is much more efficient, much safer, and results in a much better life overall. Suddenly, we find that cheap and easy communication, manufacturing, and transportation have created a global community that, for the moment, for most people, has rendered local community more or less unnecessary. Most of the needs previously met by local community are now being supplied by regional and global sources. Cities and suburbia have almost no local community, and most of what little they have is centered on play or fear, not work, and depends on oil based transportation. Without cheap oil, it's really not that local. As the true cost of transportation becomes evident and we travel much less and haul much less freight, local communities will become increasingly physically isolated. Local community will once again become centered around the production of food. Most children are growing up with no real knowledge of the basic purposes, structures, and functions of local community when we're about to have a desperate need for it. Local community will, of necessity, reestablish, but, without much cultural inheritance, it will have to reevolve.

Climate change, overpopulation, de-evolution, resource depletion, and pollution are about to mess with us in a big way and few of us are ready to deal with the evident future. Mass starvation and plague are becoming ever more likely. For much of humanity, hunger supercedes morality. In places where, for whatever reason, people are unable to adequately feed themselves, community will need to protect itself from widespread piracy and plunder. A major pandemic would be much more merciful.

Survival

There are major changes coming soon for the human community. The oil harvest will soon be over, a major climate change is within sight, birth control is steadily dumbing us down, and we're living a non-sustainable lifestyle. We have no historical precedent with which to judge humanity's ability to cope with the magnitude of these changes, but it's certain that a new vision of mankind's purpose must manifest and proliferate if the thread of civilization is to remain unbroken thru the coming challenges.

The current availability of fossil fuels provides us with an easy wealth, but very little of it has any chance of surviving the coming changes. Most of the production of contemporary industry will be in the dump within a few months to a few years. Most of the rest will need a fresh dose of oil to recycle. In the midst of the current feeding frenzy brought about by the industrial revolution, it's easy to lose sight of many of the traditional mainstays of human life on this planet. It's time to reinvest in quality and simplicity. We have sufficient technological expertise to cope with coming changes, but only a small percentage of the population seem to have a sufficient combination of intelligence, knowledge, competence, discipline, and motivation to actually get the necessary work done. I see precious little attention being paid to long term solutions to major challenges just around the corner. The American Dream is over. Wake up. We're late for work. If we can live another day we'll get to dream again.

Most people seem to think that some people called 'they' will find solutions to our problems, but when asked who 'they' are, very few can come up with even a single name, or tell you anything factual or technical about how 'they' will do it, and asking them tends to make them uncomfortable and sometimes angry that anyone should challenge their faith. 'They' can be a lazy, sloppy word that is often used to temporarily avoid facing reality. 'We' are the only ones who can do it. It's not enough just to have good intentions. Most people seem to unquestionably assume that, since they have good intentions, they'll do good things. Sadly, such is not the case. All the good intentions in the world ain't worth two dead rats if they're not enabled by good actions.

Life is far more important than lives. Several hundred thousand people die each day. Many more are born. The amount of livable and farmable land on the earth is substantially declining. As the population density of humanity increases, we are steadily trading quality for quantity. Above a certain density, there tends to be a direct inverse relationship between population density and freedom, sanity, happiness, and enough to eat. In the end, if we don't control population and consumption, calamity certainly will.

Life is a concentration of energy resulting in a local interruption in the flow of entropy. The fossil fuels are ripe and human life is currently flourishing on an abundance of energy that is measurably finite. As we look back in time through history and archeology, we see the rise and fall of many civilizations. It seems that we're about to see the demise of one more. Like Wile E. Coyote, who never falls till he looks down, we're just beginning to notice that we're running on air.

We've been cruising along in free fall for a while now, riding on the immense inertia of the industrial revolution. How we fall determines how we land. How far will we fall? How fast will we fall? Where will we land? Will we land on our head or on our feet? Do we have a parachute? Or maybe even some wings?

It's quite likely that most people won't see what's coming in time to change their behavior, and the ensuing catastrophe won't discriminate all that much between those who are desperately trying to change course and those who are completely unaware that things need to change, but despair and fatalism are not viable options. If we have the necessary courage, this transition to the next age of man can be very exciting and fulfilling.

The focus of responsible endeavor needs to evolve from the consumption of the earth's resources to their stewardship; from the attempt to prevent changes already happening to the mitigation of their negative effects and adaptation to their consequences; from the disappearing comfort of the status quo to the urgent conversion of our infrastructure to new energy sources; and to the overall instigation of positive change and rebirth. See to the education of the children in terms of the survival of community and its infrastructure. It's time to plan and create the new civilization that will rise into the next age of humanity.

Wisdom is not so much how much we know as it is how much of what we know is so and what it's worth to the universe. We don't know what we don't know and a lot of what we know ain't so. Everyone has a different and inherently limited perspective of our problems and their possible solutions and no one person has the best solution; not even you, not even me. When we combine our perspectives, we get a better view. When we combine our imagination, we get a better plan.

Life is precious.

Time is short.

Things change.

Be prepared.