

Toppling the tyranny of the 2nd Law of Thermodynamics

by Bruce Director, part 1 of 2

Bruce Director, a member of the U.S. Board of the Schiller Institute, gave this speech to the Institute's conference in Berlin on Feb. 25. It can be viewed online: <http://schiller-institut.de/seiten/201202-berlin/director-english.html>

The entire conference is available online: <http://schiller-institut.de/seiten/201202-berlin/konferenz.html>.

It is clear from what we just heard from Lyndon LaRouche, Helga Zepp-LaRouche, and the others, that the future of mankind—whether we will face extinction in the very near period ahead, or whether we will launch a new renaissance, in science and in culture, that will take mankind places that mankind has never been before—depends on an act of will, an act of the human mind. This question, the issue that the human mind is an actually efficient power in and over the universe, is the central question, and always has been the central question of science. And it continues to be the central question of science today.

But we have a population, and a scientific community, which has been brainwashed to believe there are two universes: a universe of the mind, which behaves in one way, and the rest of the universe, which behaves in a different way, and the two are not connected. This is a condition of clinical insanity, because the fact is that the human mind is an efficient power in and over the universe, and the kinds of insanity that we see dominating our culture, such as the Green movement, or the underpinnings of monetarism itself, of the belief in the power of money, are symptoms of the kind of insanity which denies the very central feature of the universe, which is the efficient power of the creative powers of the human mind.

What I and the subsequent speakers intend to do today, is to try and clear this question up for you, so that people can actually understand what we're facing. This centers really around the question of rooting out some of the false beliefs which have been introduced into science, and into culture more generally, that are based on brainwashing people to believe that the power of the human mind is not an efficient power in the universe.

Typical of this is an idea which was introduced into science in the middle of the 19th Century, known as the Second Law

of Thermodynamics, which most people today may not even know anything about, or only vaguely. It wasn't a new idea at the time, but it was a new manifestation of an old idea, and it effectively became the central tenet of the official cult-religion of the British Empire. And today, even though people may not even know what the Second Law of Thermodynamics is, they adhere to it, sometimes with such fear that the mere mention of attacking the tenets of the Second Law of Thermodynamics, causes all kinds of reactions.

The Human Mind vs. Aristotle

But let's first start with actually looking at what the universe actually is, the actual efficient power of the mind in and over the universe.

Some of you have seen this graph before (**Figure 1**), which shows the population growth of the human species, at least estimated, going far back. And you can see that there is a slow, but steady secular increase in the growth of the human populations. And then you see, towards the end of this graph, that there's a sharp drop in the population, which is denoted as the Black Death—the major collapse of population which occurred in the middle of the 14th Century. And then you see, after the Black Death, a huge, dramatic increase in the population.

Now, what happened at that period? We obviously know that the biological characteristics of human reproduction did not change at that point in history. If you read Boccaccio, he clearly describes that people reproduced biologically at that time, the same way they do today! What changed was something in the human mind. What changed, led by a small group of people in the Renaissance, was the nature, the power of the mind in and over the universe: specifically, the rejection of the Aristotelean



Bruce Director addresses the Schiller Institute conference in Berlin, February 25, 2012.

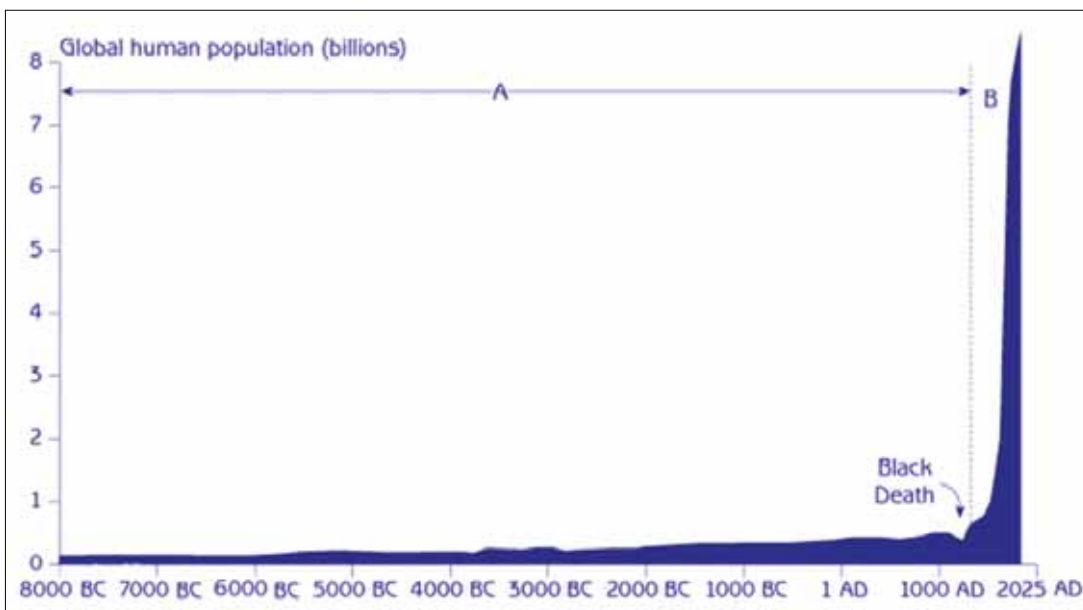


FIGURE 1

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idea that the universe was essentially fixed.

This is typified by Aristotle's cosmology, which is based on looking at the universe the way we see it from the standpoint of sense perception. You have the Earth at the center, and the planets moving around the Earth, and the stars moving around the Earth, and in this cosmology, as it's based on sense perception, you have an Earth in which everything is changing, and the further away you go from the Earth, the less things change. The argument of this cosmology is that the Earth is the least perfect, because everything is changing, and the further away you go from the Earth, toward the circumference, the less things change, and the less things change, the more perfect they become.

Which is a cosmology of an imperial system! It's a cosmology which was designed to justify a social organization that was organized around the idea of keeping everybody in their place, preventing new scientific discoveries, keeping people generally stupid, not allowing anything new to happen. And that organization of society rested on a false science, which said that this organization, this imperial order of society, conforms to the way the universe works; and the way the universe works, you can see, with your eyes and sense perception, is this idea of a fixed universe.

This thought, this belief, and this social order, is what caused the collapse of population in that period of the Black Death.

The reaction to that was an act of human will, of the power of the mind, especially led by Nicholas of Cusa, to revive the work of Plato, but also extended to assert and show that the universe did not conform to this false impression that one gets from sense perception. That it is actually organized the same way the human mind works; that the human mind is capable of making new discoveries of science, new discoveries about itself, discoveries of art, which add to our knowledge things which we didn't know before. And so, the ability of the human mind to change in a fundamental way, was a power of man that was reflected in the universe as a whole.

To put it succinctly, instead of the concept of perfection being a lack of change, a point of no change at all, the actual perfection was understood to be the self-perfectability of the universe, as reflected in the self-perfectability of the human mind. Or Cusa's concept of "learned ignorance," the ability of man to become less ignorant, and that this was an infinite characteristic.

And as a result of this, you had this excommunication of Aristotle from science. And the effort to reorganize society led to major breakthroughs in science and art, which is demonstrated by the huge growth in population. That this *idea* has an efficient power in and over the universe.

Of course, the Greenies will tell us that this was a bad thing; that the ability of mankind to exercise the power of the mind to overcome that crisis, that existential crisis, and produce the result that occurred, is something that in this crisis today, we should not make that mistake again. Instead, we should let that dip continue to decline.

Increasing Energy-Flux Density

Now, that increase in population occurred through, as I said, new developments in science and art, which expressed themselves in economics, as an increasing power, per capita, of mankind in and over nature. And one of the most direct measures of that capability is an increase in energy-flux density. I think Sky Shields is going to address this in a little bit more

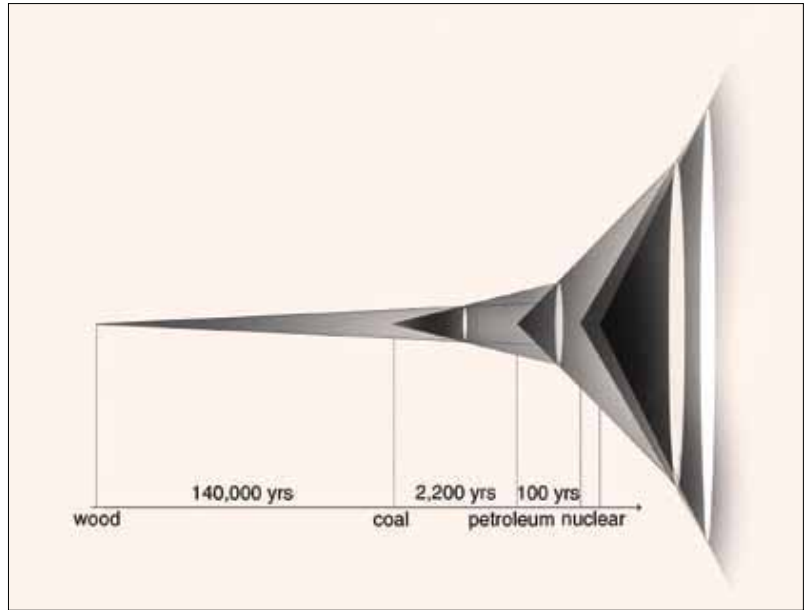


FIGURE 2
Mankind's Energy Use

detail, so I'll just go through it quickly.

Figure 2 is a graphic which was put together by people on the Basement Team. It shows the time period of the introduction of new energy sources, and you can compare this, in your mind, with the population graph you just saw. You see during that period in which you had a steady, but relatively slow increase in population, you had basically a continuation of the same energy source, of mankind. And after the Renaissance, the ability of mankind to harness these more and more dense forms of energy—energy of greater flux density, greater power per unit area—and the greater energy-flux density available in the economy, enables us to maintain expansion of the human population.

And of course, if we're going to do what Mr. LaRouche just discussed with us—that is, extend mankind's existence out to Mars and beyond—we're going to have to increase our population quite dramatically. And that requires an increase in energy-flux density. You can see the correlation between these two things. And this is very important, this question of energy and power, relative to the economy, for what I'm going to discuss about the Second Law of Thermodynamics.

Now, there's a sophistry which sometimes creeps in here, which says, "Okay, well, that might be illustrative of human activity, but, as the Greenies would say, that activity of mankind is working against the natural tendency of the universe." That is, when you get outside of man, the universe is tending in a different direction, tending towards equilibrium, not tending towards growth and development. Tending towards lower states of organization of the system, not tending toward higher states of organization and existence. So the Greens may accept this as documentation of what mankind does, but they would argue that it's a violation of the natural balance of the universe. And nothing could be further from the truth.

Figure 3 shows man's interaction—this again came out of the Basement team, the series of cones—and this is a heuristic device which shows the relationship of the interaction of human society with the biosphere, those parts of the Earth which are dominated by nonhuman forms of life, and the so-called abiotic domain, correlated with the type of increase in density of energy.

But if you look at just life itself, the study that has been

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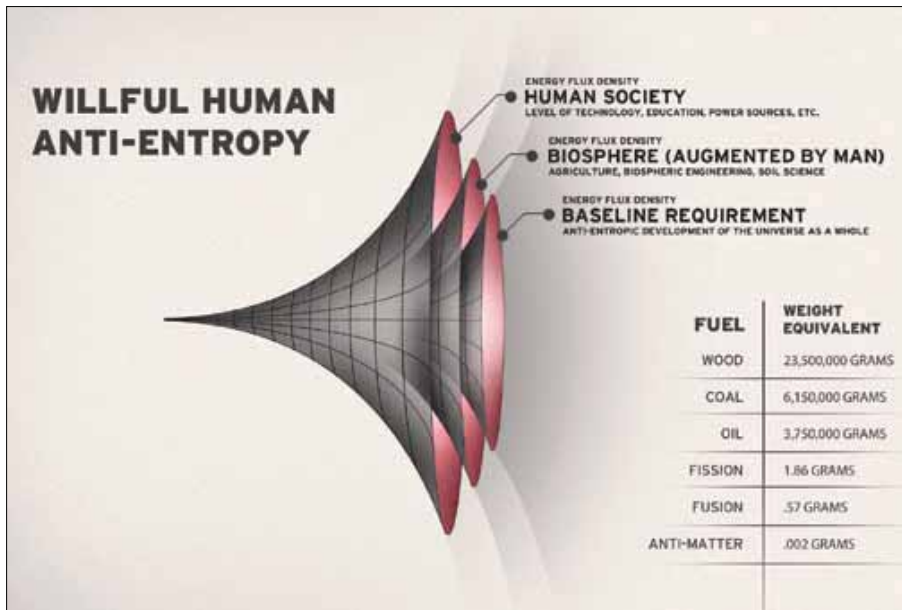


FIGURE 3

done by Sky and the others on the Basement Team shows dramatically, that the actual characteristic of life itself, even before man developed, was exactly consistent with what we see later happening in human development. That is, throughout the evolution of living species, you see that the evolution occurs from lower to higher forms of species, which are all characterized by a biological equivalent of an increase in energy-flux density. And during that course of development, you have mass extinctions—we refer to the dinosaurs, but there are many others—in which those species which do not have an increase in energy-flux density, those species were not able to sustain themselves, and they disappeared.

So, contrary to what Greenies will tell you, the characteristic of the evolution of life is consistent with what we see with human beings—which should not surprise a human being, but it might surprise a Greenie.

But the difference between other forms of life and human life, is that man makes this evolutionary changes through a willful act of the mind, whereas the other species evolve and

develop, but they have no control over their ability to adapt and conform. And at no point do you have, in this series of evolutionary developments, a situation where a lower species, a species with a lower ability of energy-flux density, takes over dominance from a higher species.

The direction of the evolution of life is irreversibly towards higher states of organization, not towards lower states.

Evolution in the Universe

But this is not limited to life itself. If you look at things which some people would say are abiotic, nonliving, you see exactly the same type of process. Although I would argue that there is really no way to distinguish these divisions between abiotic, biotic, and life, and noetic processes; in fact, all three are interacting at all times in the universe. But if you look at something that's very far away—such as astronomical processes—that appears to

have nothing to do with life, or is not being governed by living processes, or noetic processes, you see exactly the same thing.

This is a series of photographs of the Crab Nebula (**Figure 4**), which is one of the most interesting objects in the sky. These pictures come from different wave lengths in the electromagnetic spectrum. So you can see that the same object appears differently, whether you examine it through the optical band—which is the wavelength of the electromagnetic spectrum that your eyes are sensitive to—versus the x-ray, infrared, and radio, which are wavelengths which your ordinary sense-perceptual apparatus does not react to—at least, as far as you are conscious of. You're actually reacting to them, and interacting with these wavelengths, even though you may not call it perception, because they don't deal directly with your eyes. But more on that in a minute.

The Crab Nebula is hypothesized to be a remnant of an exploding star. It appeared as a big flash in the sky that Chinese astronomers noted in the 11th Century, and if it were conform-

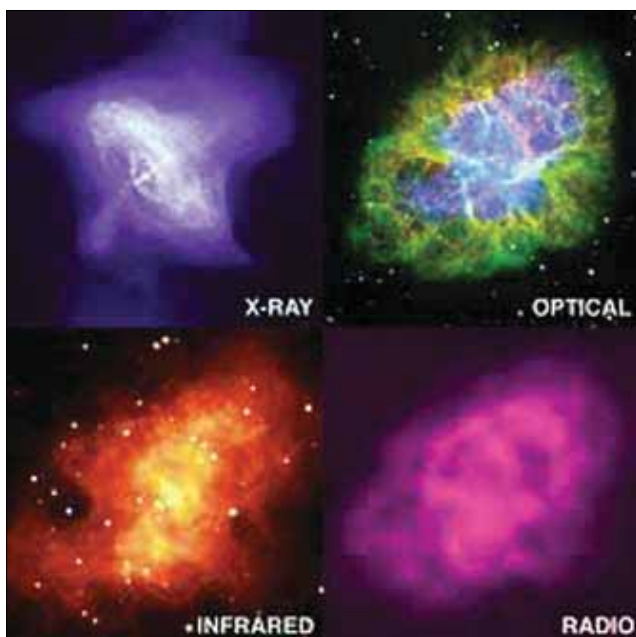


FIGURE 4
The Crab Nebula



FIGURE 5

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ing and behaving according to the principles of the Second Law of Thermodynamics, it should be just dissipating. A big explosion that just dissipates, and gets to a less and less and less state of order.

But you can even see in these pictures, just naively, that not only is it not dissipating, but it's actually organizing higher and higher structures. And in fact, recently, as Sky noted, last year there were some gamma ray bursts, intense bursts of energy in the very high wavelength spectrum, the gamma ray spectrum, which emerged and dissipated so intensely and so rapidly, that they defied any explanation consistent with a process which was devolving toward a state of equilibrium.

And we see this in other supernovas. **Figure 5** is a picture of what is believed to be the oldest supernova that we know of, another exploded star. And you see that even after a very, very long time, what appeared to be a big explosion is actually organizing new structures. We don't understand what's actually going on there, partly because the effort to understand these phenomena is clouded by the attempt to impose upon them a view of the universe consistent with the Second Law of Thermodynamics, instead of looking at it from the standpoint that these structures actually confirm what I said at the beginning: that the universe is inherently creative, and intrinsically organized towards higher states of organization and existence.

The Second Law: How We Were Brainwashed

So, how did we get to this point? This point where, despite the irrefutable evidence that the characteristic of the universe is disposed toward progress, toward higher states of development, how did we get to the point where, to say such a thing, in either a popular discussion or in a scientific conference, is greeted with skepticism. And, in fact, the organization of our society, as I've already mentioned with the Greenie movement, or if you take just the financial system, in which all these fancy financial instruments—derivatives, credit default swaps, and so forth, which were invented over the recent years—were all invented in order to force the money system to obey the principles of equilibrium; to try and maintain an equilibrium in financial flows. And the collapse of the financial system, and the collapse of the physical economy under the pressure of this Greenie movement, proves that the universe itself will actually crush any attempt to create a state of equilibrium.

So, how did this come about? That the universe behaves one way, and yet people are brainwashed so strongly, that they will organize their society according to principles which are exactly contrary to the way the universe works.

Well, let me give you a very brief history of how the Second Law of Thermodynamics was introduced. And when you see what a fraud it is, you'll be absolutely surprised that it's been able to achieve such dominance.

After the period of the Black Death and the Renaissance that emerged out of it, as I said, man with new ideas, and new concepts of the way the universe works, which were consistent with the view that the human mind is an efficient power of the universe, began to dominate, and as a result, you saw a huge increase in man's power in and over nature, through technology.



The Green movement insists that human development violates the natural "equilibrium" of nature. There is no such thing! Here, antinuclear demonstrators in Berlin, Sept. 28, 2010, displaying their religious fear of their goddess Gaia, with a banner stating: "The uranium has to stay in the earth!"

This occurred by the work particularly of Cusa, of Johannes Kepler, and also Gottfried Leibniz, whose work on dynamics, which elaborated the means by which man can understand the physical universe as an essentially creative process. Leibniz's work led to a new development in technology which was absolutely crucial for economy: the heat-powered machine. Now this was the first time that man had actually used heat as a form of power.

If you think about it, prior to the development of the heat-powered machine in the mid-17th Century, all of human economy was based either on muscle-power, animal or human, gravity power, or wind power. But now heat became a power source, and initially the view of heat was that it behaved like, for example, gravity. A water wheel powers a mill because the water falls under the force of gravity; the power of gravity pushes the water and turns the wheel. And heat appears to behave similarly, because it flows from the hot to the cold. And so the initial idea was that the power of heat comes from this inherent condition, where heat flows from hot to cold.

But here's a crucial difference between heat and my example here of the water wheel. Because while the water can flow from high to low, it can also be pushed back up again, which of course is the principle of how the water wheel works. But heat only flows in one direction. It only flows from hot to cold. You can't get the heat to flow back from the cold to the hot.

Now, understanding this process is crucial to being able to understand the efficiency of the heat-powered machine. Because obviously, to increase man's power over the economy, one wants to be able to construct the most efficient heat-powered machine, and to increase the energy-flux density per capita of mankind. And this is what Leibniz's studies involved, and it's also what was involved in the studies of Sadi Carnot, Riemann, Dirichlet, Fourier, and others—to actually try and understand exactly what is the nature of heat. We don't have time to go into this today, but let me just show you how this investigation was misused to create a brainwashing that you see today expressed in the Green movement, and in monetarism.

To be continued...