LPAC-TV WEEKLY REPORT

Dinosaur or Human?

The LPAC-TV Weekly Report of Feb. 1 featured Lyndon LaRouche, and Sky Shields, Oyang Teng, and Ben Deniston of the LPAC Basement Team of scientific researchers. It was hosted by John Hoefle. Here is an edited transcript.

Lyndon LaRouche: Good morning. Today we're going to be treating actually two subjects, which are interrelated. On the one side, we're now in the period, which has become graver recently, which threatens a general breakdown, and worse things possibly, politically, in the world. We're on the verge of a thermonuclear war, which is being initiated from the British monarchy, and which is a threat now, to launch a thermonuclear confrontation with Asian nations, including Russia, which is Eurasian, China, and other countries. Russia and China are among two of the most important thermonuclear systems for warfare on the planet. The United States, with its submarine warfare for thermonuclear weapons, is probably the greatest power for killing on this planet right now.

If the plan now is to have—and it has been, since the time of the shutdown of Libya, and the killing of Muammar Qaddafi—the intention has been to have the Israelis launch an attack, an aerial attack, on Iran, and on the basis of engagements, set forth a conflict which will go very quickly to a thermonuclear conflict, probably launched by the United States, under British direction, against China and Russia.

Right now, if you pay attention to the news, the United States is now committed, under Obama, and under the British, in particular, to launch a thermonuclear war. It's their war. Obama's merely a figure who's being used in it, but it's their war.

On the other side, we have another issue, which is a related one: that we are now faced with a danger of a general collapse of the world economy, for other reasons. One of the causes of this crisis is the spread of a program,

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"The matter that is going to be presented today is a demonstration of the proof that the idea of zero growth is also a threat to the existence of the human species," LaRouche stated at the outset. Oyang Teng is to his right, Sky Shields, to his left.

also authored from London, the British—and it's explicitly stated publicly, from the British monarchy—to reduce the world's population rapidly from 7 billion people, to 1 billion people. Of course, that would coincide with reducing the world's population to 1 billion people by means of thermonuclear war.

These are the issues.

Recently the Democratic Party leadership has backed off from attacking Obama. Obama is the keystone for setting off this war. If Obama is not constrained—and there's no intention by the Democratic Party leadership to even attempt to constrain him now, which means we've got two: Mitt Romney, who's bad news in and of himself, and also then, Obama, who's very bad news, a British puppet, who will be dispensed with, but now is a great threat.

So now, these are the conditions under which we're talking about any issue, including scientific issues. These are the realities. If you do not put these realities up front, you don't know what you're talking about. And most people out there, I think, don't know what they're talking about.

In the case of the Democratic Party leadership, the problem—I'm familiar with these people and therefore I know what I'm talking about—is that they're scared. They're not particularly courageous people for a war kind of situation as this is. They don't want to face it. They will hope that somehow it can work out, and therefore the Democratic Party has given up the fight. Obama is the vehicle who's supposed to launch the United States into the war, and if there's no check on Obama, and there will be no check on Obama right now—that might change, I would hope it would change—but if Obama is not checked, you can kiss this nation and a few other nations, essentially, good-bye.

Now, this involves also the question of population. And the chief subject that will be discussed here today, will be factors in the population of species. Which species are going to survive, and which not. And we have something to present today, which is extremely important from a scientific standpoint, but with the aforesaid political implications and strategic implications.

The matter that is going to be presented today is a demonstration of the proof, that the idea of zero growth is also a threat to the existence of the human species. And we have the scientific evidence to prove it, contrary to a prevailing popular view, among many people who tend to look from behind the people they admire. And so, let's get started.

Green Policies Are Not Human

Sky Shields: We'll lay out a continuation of some of the discussion we had last week (*EIR*, Jan. 27), using the heuristic model we put together for looking at developmental processes in general. We're going to take a look at why the entire program that's being proposed right now by the environmentalists is insane and destructive, and will lead to the destruction of the human species. But also why, underneath the specific policies that they're proposing, is something that's identical to everything that's being proposed by the so-called right wing, the monetarist program, etc. Everything you're getting from, for instance, a Newt Gingrich. Or everything you're getting from any of these other Republican candidates: that there's an absolute identity between what's known as monetarism, free-trade economic policy, deregulation, and the policies that are known collectively, as environmentalist policy, Green policy, zero-growth policy, lack of development.

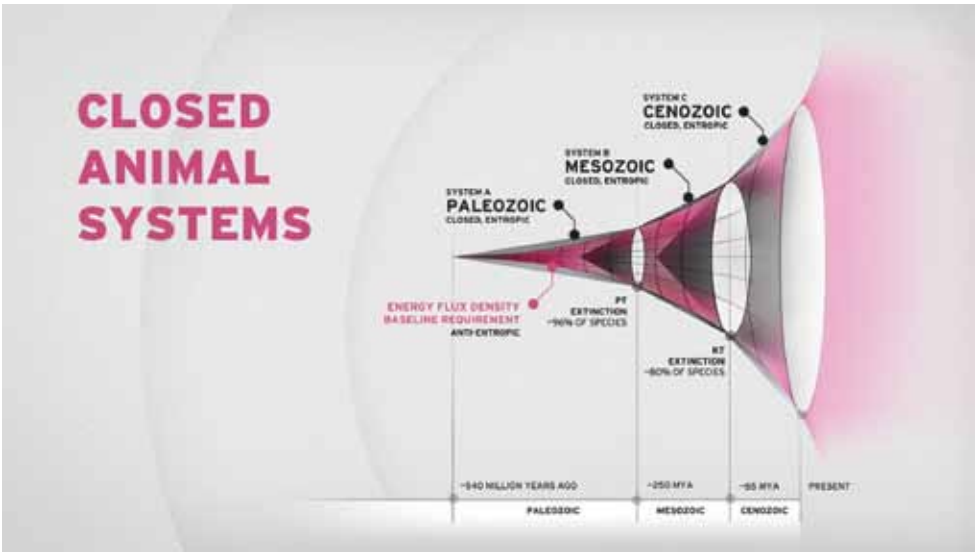
And in fact, the primitive character stems from the

fact that these policies are explicitly not human. That, in fact, these are the kind of policies that you would implement if you were a very specific species of animal.

We'll see that the biosphere as a whole does not obey what they're describing. And never at any point in time has the biosphere as a whole obeyed the policy being proposed by the environmentalists today.

However, individual species do have the character they're proposing for mankind, which is the idea that, "Well, we will have no growth, no development." In fact, people will argue that, "Well, you can't really define what development is. What do you really mean by progress? Can you really tell us what progress is? Can you define that?"

FIGURE 1



And what we'll go through today, is that, yes, in fact, there is a very clear, very strict metric of progress, that can be used, can be applied; and in fact, we find this is something which is expressed not just in the human development, but in the development of the universe as a whole. And in looking at the process, looking at the principles that guide that development of the universe as a whole, it's going to get us to something that lies behind the shadows, behind the effects of certain types of what you would call anti-entropic development; it's something that's actually more substantial. And it will be in looking at that, that we'll be able to define more clearly, what we should call a principle of creativity, and a principle of mind.

We'll make the point here that mind is not something that appears once human beings appear on the scene; that mind is something that's implicit in the universe, and human beings are the unique, singular expression of that. The one time when you get the process that governs the universe as a whole, reflected in an individualized form, is in the appearance of human beings on the planet. And we'll discuss that rigorously.

And with that sort of isomorphism in mind, between the creative human individual and the universe as a whole, the creative principle of the universe as whole; with that in mind, we'll be able to look at the processes of universal development, and draw much broader conclusions from them than you would be able to take from these specific isolated cases.

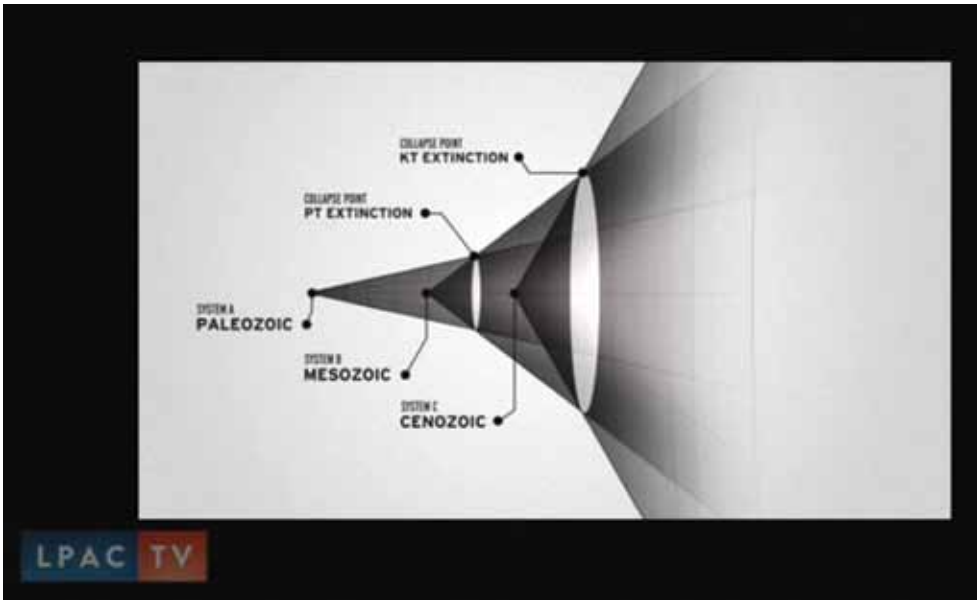
The most significant conclusion I think we're going to get from the discussion today, and the work that we'll go through today, will be that the failure to recognize these processes, the failure to become a conscious manifestation of this process of creative development, will lead to the destruction of any society that implements that opposite policy. Any society that refuses, that fails to move in this direction, in a natural progressive direction, will be destroyed simply by its attempt to prevent this forward motion.

The Development of a Closed System

And so, we're going to walk more slowly through this model that we put together in the earlier discussions here. We'll be able to model the development of what we'll call a closed system (**Figure 1**). By closed system, we mean any system which is, again, the model of what you get proposed by the environmentalists, and also by your modern-day monetarists—and it's one of the things that, ever since the 27th Solvay Conference, and the takeover of quantum mechanics as a policy, and the reign of reductionism, this has been the view: that the universe as a whole is, and should be, governed by a set of fixed laws.

You have a set of fixed laws that function as your axioms for a given state. Everything else that exists in your system at that time is something that can be de-

FIGURE 2



rived deductively from those fixed laws. So your system forms a closed, axiomatic system.

Now we're going to look at the behavior of any closed axiomatic system. What we'll use as our case study here, is the system that precedes what's known as the PT extinction, the Permian-Triassic extinction, the late Permian extinction. This system is a very specific system of life on Earth, in the biosphere (**Figure 2**). These are very characteristic types of animal life, plant life, etc., that characterize it.

We're going to take a look at that, and what we'll see is that there's a very specific idea that governs the entirety of that system. And I don't use the word idea loosely here. I think in the course of looking at this, we'll be able to define much more closely, what do you mean by idea, ontologically. Not simply as, people have sort of a loose sense of what this means by their own experience, what they think they've experienced as ideas themselves; but we're going to discuss from the standpoint of the actual physical universe, what does it mean to say that an idea exists.

And we're going to compare that to the subsequent system here (Figures 2); where that system, leading up to the Permian-Triassic, is known as the Paleozoic, or the Old Animal Life, the period after this Permian-Triassic—PT—extinction, known as the Mezozoic, the Middle Animal Life.

Now, there's a point at which that middle system becomes predominant over the pre-existing older Paleozoic system. Now that is marked by a collapse point, an extinction point. And we're going to get to why the character of that is not something accidental.

This is something that is a source of much debate right now. There's a lot of work being done to try to explain, kinetically, why you would get these events known as extinction events, in the history of the biosphere. These are very difficult to explain, and it's impossible to explain them in kinetic terms. It's useful to see the attempts to try to describe why the PT extinction took place.

To give you an idea of why this is difficult: This is a point in time, a point in history, where probably between 80 to 90-some percent of all species on the planet vanished. Now, that's rather significant. And looking through the fossil record, you see an incredible diversity. You do see a constant rate of background extinctions all the time. You can see a constant turnover of the appearance of new species; that always happens. And in fact, it's important to take note of, because with all the panic nowadays about trying to preserve endangered species, the biosphere has a notorious track record of not preserving endangered species. It really doesn't care very much. In fact, more than 99% of all species that have ever lived on the planet, have ever existed, have been wiped out by the biosphere.

So, this is to give you an idea of who's the worst criminal: The WWF [World Wildlife Fund] goes and tries to take on nature directly.

But, aside from that background extinction rate, which, again, is significant, you get these singular events where you see the rapid collapse in biodiversity, the rapid disappearance of species, collapsing down to a very few, then expanding out again. But what expands out after that—that collapse point—is not the same system that was developing prior. What expands outward is a new system, of which we will have seen the pre-existing elements in the system prior. And we've

marked that off in our image here (Figure 2), by showing that you have an inception point for your secondary system, which exists within the primary one. But that second system we find developing within your initial system, up until the point where it becomes the dominant factor. And the prior system vanishes and dies out.

The Principle of Progress

Now, this is not an arbitrary event. The difference between these two systems is actually very strictly quantifiable, and in the difference between these, we'll be able to very clearly define a concept of progress. In fact, what we'll see, is that the principle of progress is the driving principle behind this process; and the factor that governs what vanishes at this extinction point, in *any* extinction point, is what, at that point in time, violates this principle of progress.

And we'll see—because that's the governing principle—why there's such difficulty in explaining how that can happen. For this, the PT extinction, there are all kinds of attempts to try to explain it: Can you account for it by asteroid collision? Can you account for it by volcanism? And, in fact, we'll see that there *is* a relation between volcanism and some of these processes; but none of them work kinetically to eliminate all life on the planet. It takes immense effort for these guys to come up with even a domino scenario that would do that, to have the volcano erupt, produce the right kind of environmental changes that would kill off the right things. The only thing is to add extra things on top—adding asteroid collision—in order to try and finish things off.

No combination of what you've ever been told about an extinction event is enough to account for either a) the degree of destruction that you're seeing; but certainly not b) the degree of anti-entropic development that you see through that event. Obviously, no volcano or asteroid is going to able to account for the diversification you see afterwards, the actual growth, the anti-entropic growth.

That same character is true of the extinction event which occurs much later, the KT extinction, which separates the Mesozoic from the Cenozoic (Figure 2), the Middle Animal Life, from the new, Modern Animal Life. Now, that's the extinction event most people are more familiar with, popularly. This is the extinction event that separates the so-called Age of the Dinosaurs from the Age of the Mammals, the whole system that comes later on.

But we'll see that it's not simply the dinosaurs that vanish: Again, it's an entire system. The entire system that the dinosaurs were a part of, is going to be governed by a single idea; and again, we'll be able to clearly define that idea, or clearly be able to show when that all the specifics that were connected to that idea, all the physical elements predicated on that idea—that they vanish at the point the idea vanishes.

And again, a system which was preexisting in germ form within that Mesozoic system, which becomes the Cenozoic system, that includes the mammals, but also birds, fruiting and flowering plants, grasses—there's a whole complex system which is already there in seed form, the entirety of the system is in seed form, as one thing, as a single idea, during the Mesozoic, before the KT extinction. But after the KT, after this collapse point (Figure 2) where you see the collision of the two systems, that later system, that Cenozoic system, takes off, and becomes the dominant factor.

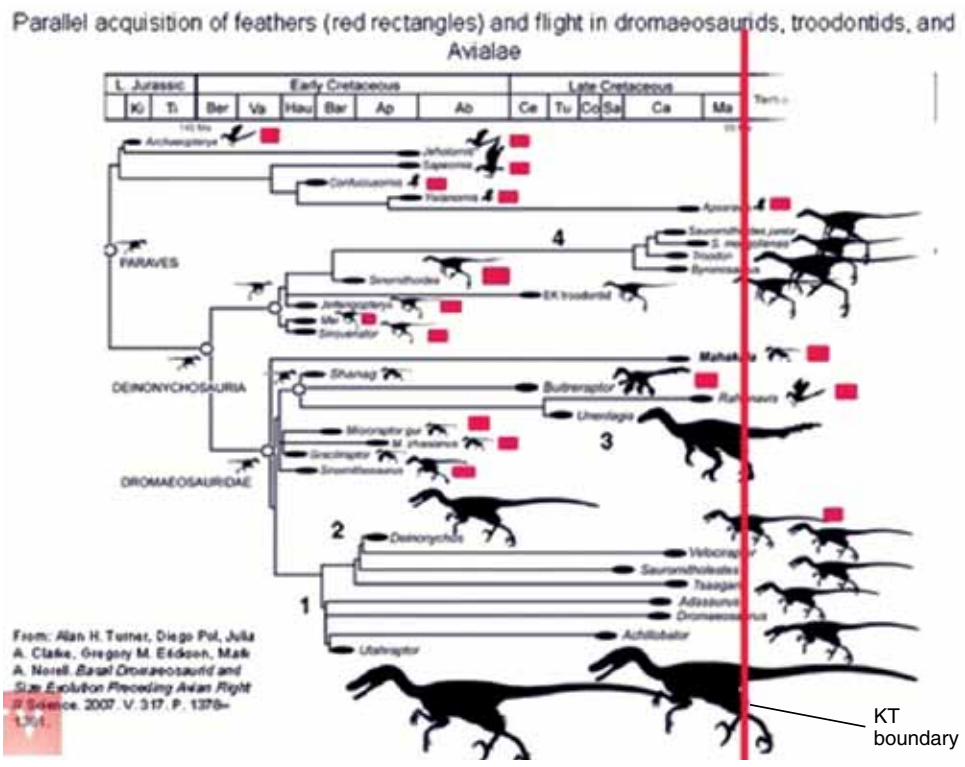
Now, we're going to make it very clear that there is a set of metrics that we'll be able to see, that define that growth, through that collapse point. That it is possible to clearly define what you mean by progress, what you mean by development. The metrics themselves are going to be curiously interchangeable; that you won't find any one that you're going to be able to just rest on. We'll look at a few values that are going to definitely, clearly define progress, but you're going to see that they all seem to be a shadow of something else.

As you look, there will be certain changes, where some metrics will seem to increase, others won't; and then other places; but among them all, they form one, single set. But no one of these is going to be capable of defining what you mean by "progress." There's going to be something else that's underneath it, that's actually defining the process. That *invisible* thing that you see that's governing, that will be hinted at, is going to be the actual, most important part of investigating this process, and it will be the thing that we'll be able to carry over into policymaking in general, in the discussion of policy with human society, human economy.

Research and Development

So, we'll take a couple of things. I'll give you just one example here of what we mean by the system in germ form, across the KT boundary, across this extinction boundary: that at this point, after this boundary, is when you see, again, the explosion, the real diversification and then the rise to prominence of mammals, of birds, of fruits. Mammals do a very funny thing, where

FIGURE 3



you suddenly see that they increase in size rapidly, from these little mice-size creatures that they were.

Within the Mesozoic, the system where the dinosaurs were included, all these elements—the birds, the mammals, etc.—were so tiny as to be insignificant to the overall functioning of the system there. You get very small, rodent-size mammals, etc. Post-KT, you see them rapidly increase, actually going through a period of gigantism, before finally shrinking down to the size that we know now.

But even prior, if you take a look at the post-KT, there's a system that actually ends up *requiring* birds, as a crucial part of the development. Birds play a role in the whole system there, with fruits. Once you develop fruiting plants and seeds, birds obviously begin to play a big role in transporting seeds from place to place, and maintaining the way the overall system functions (Figure 1). They increase—what we'll discuss later—a process known as "biogenic migration," a concept developed by the Russian scientist Vladimir Vernadsky. They're absolutely essential, post-this KT boundary, but not necessary prior to it; they don't play a huge functional role.

Nonetheless, in that period before the KT boundary, you see a whole process of research and development—I think you can safely refer to it as "research and development"—the actual hypothesizing that's moving towards the development of that later idea.

So, here we have the actual KT boundary (**Figure 3**), and after the KT boundary, the only one of these lines that continues past the KT boundary, is the one that we know as birds, *avis*.

But what you're looking at here, prior to the KT boundary, are all the places where you see the appearance of feathers and/or feathers associated with flight prior to the KT. And what's important in having the [evolutionary] trees set up here, these are the plausible evolutionary relations based on types of similarities. And these are only plausible; none of these are known. But if you're trying to describe what are the plausible relationships—and again, these are the only ones that have developed feathers—you get creatures that are otherwise totally unrelated, developing feathers, prior to the necessity for feathers in the system. In fact, these creatures were totally incapable of flight—large creatures, like the velo-

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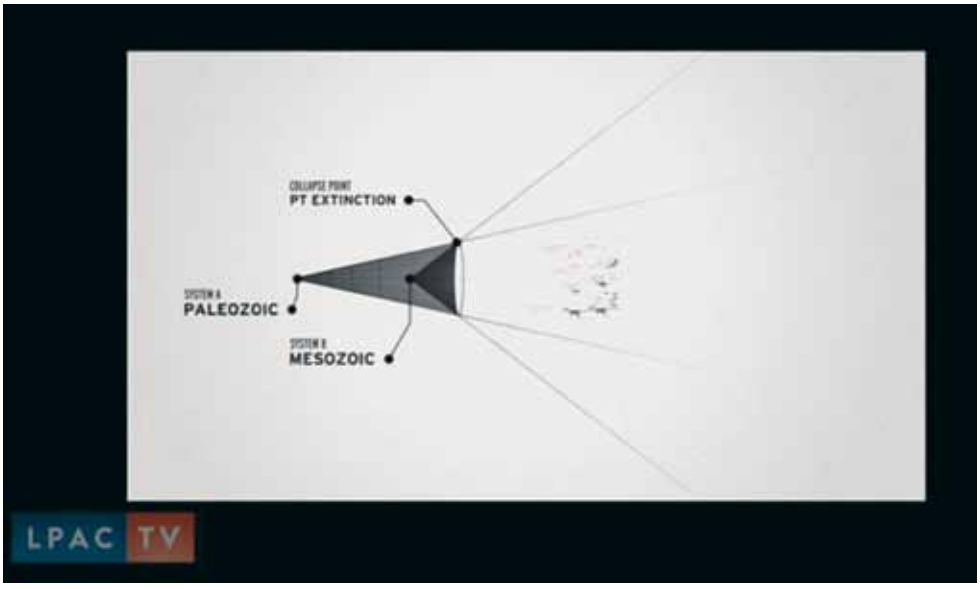
Prior to the KT boundary, you get creatures that are otherwise unrelated, developing feathers, before there is a necessity for feathers in the system. Creatures like the velociraptor (shown here), were incapable of flight; their feathers were not used for what feathers were ultimately intended for.

ciraptor, developing feathers, not used for what feathers are ultimately developed for.

So you can see these sort of echoes of a future system. Two things are significant about this: One, is that these are echoes defined by a future state: *that it's actually a future state of the whole system which does not yet exist*, which hasn't yet come to prominence. It's being tried out in this earlier period. This is going to take us to something we'll discuss through the course of our discussion here—to a real texture of "what do you mean by physical time?"

FIGURE 4



And we're going to see echoes of it in this sort of causality, where the causality in the system is not what Laplace defined. It's not like dominoes, it's not that the cause for each event is the event which immediately preceded it. In fact, if you try to look at the events immediately preceding this research and development, you find no cause—even in the moment itself, there's no cause for it. Where we'll get to: that the very idea of a Laplacean moment, the idea that you can take some slice of time, and have it be completely determined, is not true. That exists nowhere in the actual physical universe: That's a mathematical fiction. In fact, the reason for the state at any given moment, we'll find, is only going to be found in a peculiar way, is going to depend in some way, on the much later state which is to follow.

The Real Paradox

Now, at the same time, it *is* true that that later state which is to follow, is only permitted, facilitated, by the state which comes prior. So it gets us into a paradox, in any attempt to represent time simply linearly. There's a kind of a texture there that's required. And as we'll discuss later on, exactly that sort of a texture is the only kind of a physical universe that will permit human free will; but more specifically, human creative thought. That is the real paradox, the question, "What kind of a *physical* universe, what universe will permit human free will to exist, as a dominant feature, as a governing feature?" is going to require a complete overhaul of what we've defined as time and space. And we'll have some first stabs at it, in the course of this discussion here, because we'll see that it's *essential* to really understand this process of development here.

So you see this development. This beginning period, you can treat as the apex of that cone, of that later system. The break here, at the KT boundary (Figure 3), where you see that only one of these trends continues, even though the research and development was done in all these unrelated areas, with feathers, *one* continues and then diversifies wildly, into all the types of birds we see today. That development corresponds to what we saw here, with the appearance during the Mesozoic of the system that becomes the Cenozoic system. And then, again, at that KT boundary, becomes the dominant system as it expands.

Now, that's going to give us the ontology of physical time, which is very different (**Figure 4**). This is something that Vladimir Vernadsky worked on, in some detail, the point that the time of mathematics and physics, is not the time of the actual physical universe. That this is a *severe* abstraction, and this was known. Most people who think seriously about it, realize that there's no mathematical representation of time that even corresponds to your most basic experience of time. The most basic experience that you personally have, is that there's a distinction between what you know as a future and the past. There's no way to signify that mathematically; even that *simple* fact about it is not simply signifiable by that distinction.

But then, there are *more important*, qualitative characters of our experience of time, which are going to be contained in human creative mentation, which we'll discuss a little later. But those will be important, because those are the ones that are going to be necessary to be understood for policymaking: questions of really defining, how do you know, right now, what policy direction the human species must take in order to ensure the sustainable survival of the human species?

Now, this is serious: I'll just take a quick, little diversion on that: that we want to have in mind some of the most interesting paradoxes, I think, of human development; one, that we've brought up before, but is the paradox of real human education, which is seriously paradoxical, when you think about it. If you recognize that the human species thus far, and into the future, depends on the development and introduction of concepts that did not exist prior—actual creativity, the actual introduction of something which did not exist prior—and you say that our continued existence as a species depends on that. So you depend on us being able to introduce an idea, which was not contained deductively, in anything prior. Then, what are you claiming that you're doing, when you're talking about educating youth, educating a new generation?

There's a lot of *chutzpah* involved in saying that you can successfully teach somebody to do something that you do not yet know how to do. There's a lot of *chutzpah* in saying that you're actually capable of having a new generation; that you can consciously take responsibility for a new generation, and ensure that that next generation will be able to introduce something that does not yet exist, that you're not giving them deductively. This is not animal training. There's something else being done here, which depends on the character of this process.

And again, it will have this quality, where it's not the moment, there is no Laplacean moment, which is capable of defining everything that comes after. Instead, there's something subsuming, that has a *very* different character.

So, we'll come back to that.

But first, I'd like to go through one specific arc, that will contextualize for us what we mean by "policymaking." So we can take a look at what we've done with the policy currently proposed by our political movement as the necessary next step for the human species, which is, NAWAPA—the North American Water and Power Alliance—a kind of quick case-study, to see how our overall arc of development here, relates to that, as a policy, if implemented.

FIGURE 5

And Oyang, you can take that.

The Development of the Biosphere

Oyang Teng: Take it back to where you had the beginning of the Paleozoic, because I think that's the context for conceptualizing the process of not just growth, not just the lily pond growth in a linear way, but the actual development and transformation of the environment, to the point that what you call the "environment," becomes indistinguishable from the process of development.

You can see that if you go back: You take the first major expansion of the biosphere, from the oceans onto land. Take yourself back to a point, roughly 400, 450 million years ago. If you were hovering above the planet, and you looked down, you would see ocean, continents, you would see mountains; but what you wouldn't see, is green (**Figure 5**). There would be barren continents. If you zoomed down, if you got a little bit closer, you'd find you've got these vast kind of rocky plains and mountains and so forth; there might be little mats of algae, there might a couple of little lichens stuck to the rocks, but there wouldn't be much else.

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The first major expansion of the biosphere was the movement of life from the oceans onto land: "The creatures in the ocean had it good," Teng pointed out. When they looked at the land, they would have said, "No, that's too hostile, we don't need to go there. There's nothing there for us." But go they did.

There would be, really, a hostile environment, especially from the standpoint of anybody in the ocean.

The creatures in the ocean had it good, right? All the nutrients are just floating around, you've got currents that are bringing nutrients to you. You're protected from the harshest forms of solar and cosmic radiation. You've got it made. Anybody looking at life out on land would say, "No, that's too hostile, we don't need to go there. There's nothing there for us."

If you think about the actual process that had been developing, through the Cambrian explosion, through that point about 540 million years ago, where you had this rapid expansion in the oceans, part of what preceded that, was a major, major pollution of the environment: the creation of a free-oxygen atmosphere. And that completely violated the entire structure of the planet at the time. It forced it into a new phase; and part of what it did in creating the ozone layer, for example—the initiation of free oxygen, the ozone layer—it began to open up the possibility that the land surface, which up till now had been a total, barren wasteland, all of that solar radiation just bouncing right off, almost nothing capable of living there, all of a sudden became the frontier for the development of the biosphere.

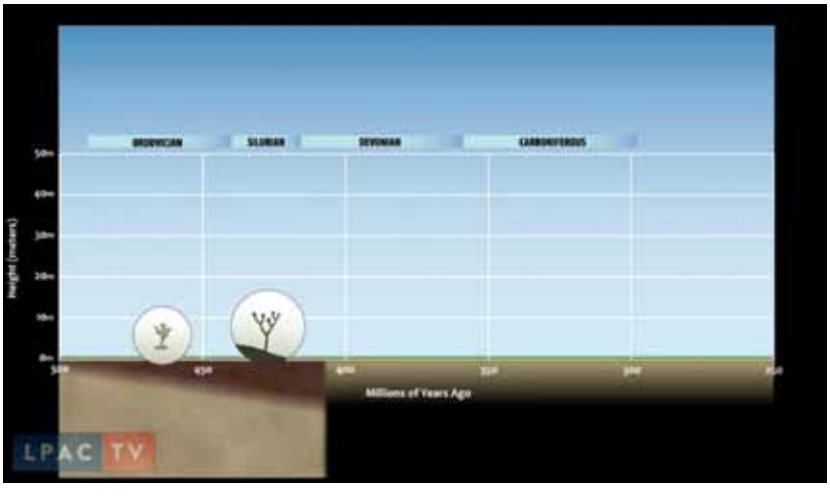
Now, what's interesting, is that if you take a look at the process of movement, from the oceans onto land, you get a sense of—the image that's often used, you've referred to it as the "mold hypothesis"—is that you sprinkle a little bit of mold, and it's the equivalent of leaving your dirty socks out, and eventually something, some kind of fuzz will grow over the surface of it, and then you have to toss it out.

The colonization of land was much different: This was actually another serious violation of the existing environment of the time, starting with the first, modest land plants that come out, and begin to kind of colonize the coastal areas, where you still had a relatively moist environment.

The first major innovation was to begin to create the vascular system. So going from the very low-lying moss-type plants, which were easily dried out, easily dessicated, they had really no internal plumbing, so to speak; they relied on the ambient moisture of the environment, they were obviously very limited in range.

Once you began to create the vascular systems that made it possible to actually channel water up through the body of the plant, and transpiring that out into the atmosphere, what you began to see—this was about 420 million years ago—was a slow raising of what's called the "boundary layer," which is the interface of the ground with the atmosphere (**Figure 6**). And there's a very specific change that occurs as you begin to raise this boundary layer: You actually change the characteristic of the air flow inside of this boundary layer. So, if

FIGURE 6



you imagine, maybe 400 million years ago, you've got the beginnings of maybe ankle-high plant life beginning to sprout up.

Now, it wouldn't be completely obvious at the time, but this is a crucial sort of premonition of the type of process that would be necessary for the development of the biosphere on land, because, you began to have the beginnings of an actual hydrological cycle. As this boundary layer gets raised, as you change the characteristics of the air flow, you moisten the air flow *within* the boundary layer, it expands the capability for plant life to expand itself.

Now, part of what was happening at that time, was a growth in a new type of relationship among living species. Again, you have to consider, the land surface at that time was the most hostile environment you could imagine. You had constant drying winds; you had constant bombardment of UV radiation; you had to actually take everything that was given to you in the oceans, and essentially package that into the equivalent of a space suit, to be able to survive on the land.

And this involved a number of specific innovations, specific technological breakthroughs: One of the first would have been the development of a waxy cuticle, a waxy sort of covering to preserve the water content inside of your plants. The other would be the ability to support yourself in a gravity environment—you don't really have that problem in the oceans, you've got buoyancy. All of a sudden having to support yourself requires the creation of new materials, new materials that, as they allow you to expand higher, also force the development of root systems, to be able to draw water from deeper, to be able to stabilize the plants.

A Transformation of the Planet's Environment

So, at the same time that you begin to have a steady rise, you also have a corresponding movement down (**Figures 7 and 8**). Now, this is key: What right did plant life have to alter the environment? And I think if you asked the rocks, they would say, "Look, life before plant life was completely different." As the roots began to creep into the rocks, what you have is a cycling: The roots are actually taking the products of photosynthesis and channeling that down into the ground. What that does, is begin to break up the rock surface. You're not only breaking it up, but you're altering the chemical composition, you're altering the geochemistry. You're beginning to create new types of minerals.

The evolution of the mineral diversity of the Earth, really takes off, corresponding to the radiation of life on land, and we'll get to that in a second. But, as this process develops, you begin to have a total transformation in the environment of the planet. You begin to create soil, which had never existed before. The soil itself is a complex mixture of new minerals, new microbial communities,

FIGURE 7

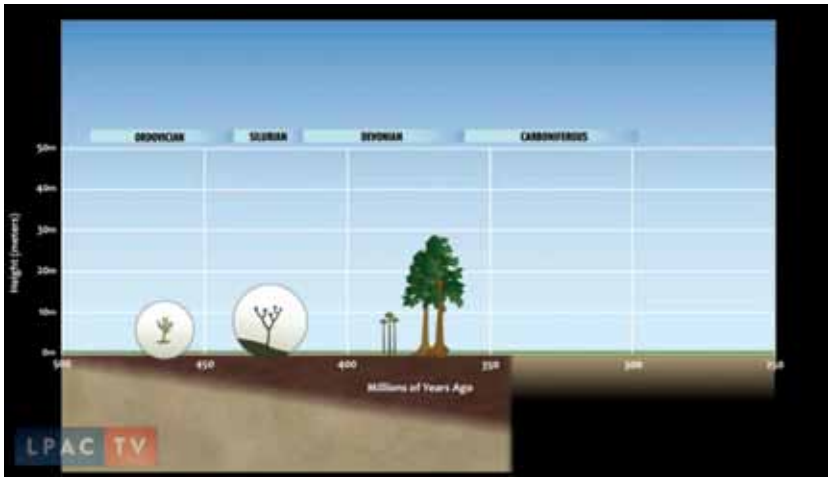
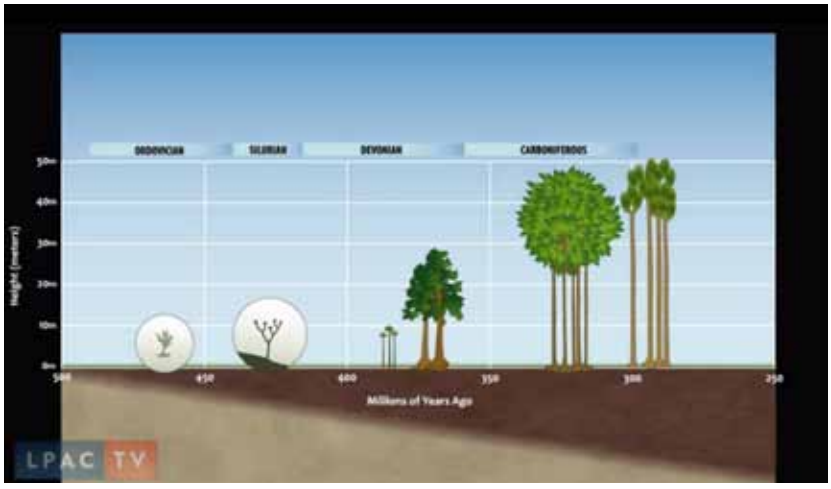
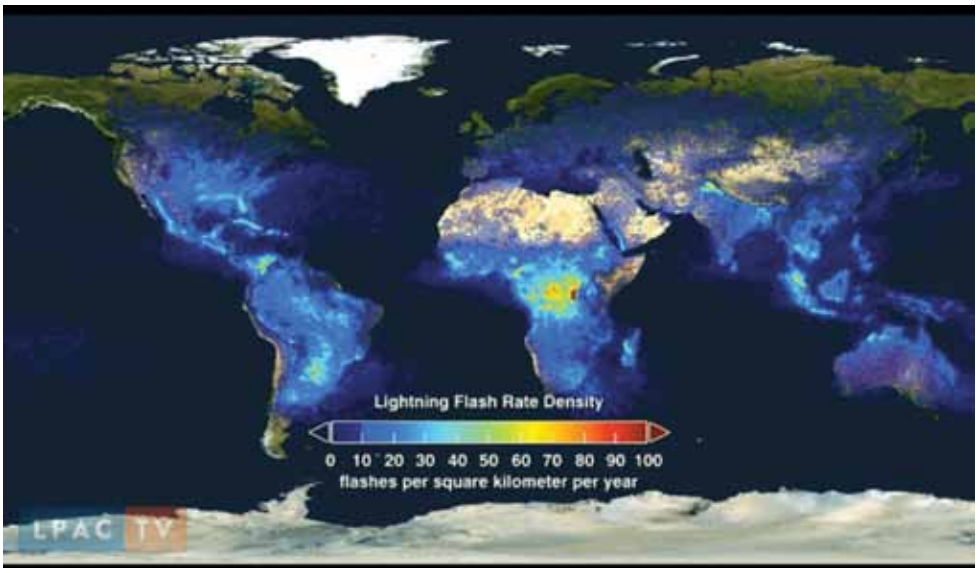


FIGURE 8



and this, combined with the interaction of the atmosphere, begins to create an accelerating flow of material between the atmosphere, the soils, and into the oceans, all mediated by the plant life that's growing, developing, and taking into itself—creating *inside* of itself the equivalent of an ocean on land. Now, there's a key difference—that the cycling of nutrients in the ocean is sort of a whimsical process: It depends on the movement of currents, and the winds, and so forth, to bring up nutrients from below.

FIGURE 9



As you begin to create the development of a real biosphere on land, you have an active flow, which is controlled by the machinery, by the plumbing so-called, of this system. The system involves an interconnection of plant life, of fungus, symbiotic fungus to connect the root systems of these plants; you actually have to create a whole interconnected, nested network of living organisms that are capable of drawing, into the system as a whole, the required flow of nutrients, that pass from the soil through the system on land, up into the atmosphere, and then back down into the soil.

A good image for this, is to take the idea of the water cycle, the rain cycle: It's usually discussed as just a sort of evaporation, and then precipitation, evaporation/precipitation. But it actually involves a much more active process. Like I said, with the creation of the soil, you create a new capability to actually maintain the moisture of the soil, to maintain the water-retention capability of the land. That now becomes a reservoir, which is drawn up through the root systems, is transpired into the atmosphere, and is recycled on land, which allows the actual growth, the spread of plant life further inland. So, if you imagine now, you go back into your spaceship, you're looking down, and if you had a time-lapse view of this, you would begin to see the layers of green at the margins of the continents beginning to move steadily inwards (Figure 3).

Now, that in itself, contains a whole set of what you referred to as "metrics" for actual anti-entropic development. Number one, this becomes a necessary process for the flow of material, through the system as a whole. It is controlling, for example, the flow of material into the oceans. Key elements, like phosphorous, or carbohydrates, are now being modulated by the retention and the activity of plants.

But secondly, this colonization inward into the land, also involves a corresponding colonization *upward*, into the atmosphere. Not only is the boundary layer being raised, but the composition of the atmosphere, in terms of aerosols, in terms of microbes, and in terms of water vapor, is now creating a system, where you're creating new cycles, which are growing, developing on the land, and feeding the density of this process itself.

One example to consider is that one of the major limiting nutrients for plant life is nitrogen. Now, one of the major ways the biosphere creates nitrogen, is through lightning. Now, as the density of plant life increases, especially as you begin to get trees as they appear in the Devonian period, about 350 million years ago—this now, with larger trunk systems, broader leaves, deeper root systems, accelerating the weathering of the rock, increasing the uptake of nutrients and water from the soil, increasing the evapotranspiration into the atmosphere—begins to create the capability to have rapid movements of moisture into the atmosphere, and the development of storm systems. If you look at a satellite map of the planet (**Figure 9**), the places of the densest lightning formation are the places where you

FIGURE 10

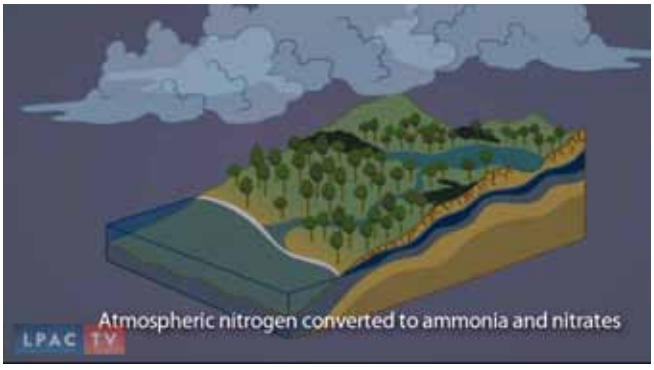


FIGURE 11

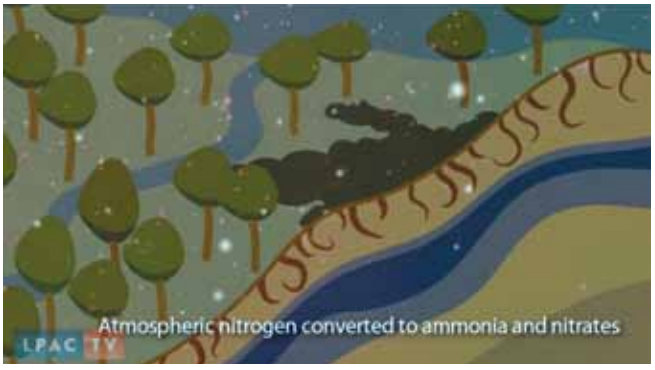


FIGURE 12

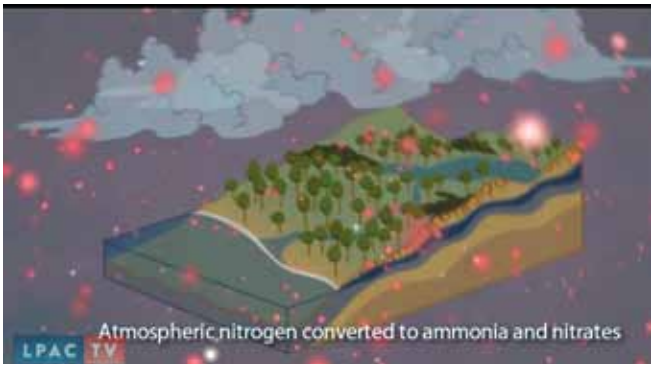
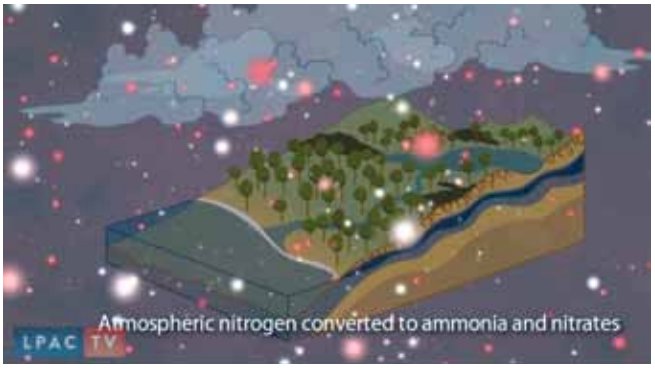


FIGURE 13



have the densest foliage, particularly in the Equatorial regions, where you have rapid changes of ground temperature.

So, this now sets up a new structure in the atmosphere, a structure that's mediated through cloud systems, thunder systems, that now, through the creation of lightning, produce a key ingredient necessary for the plant life which is producing the flows of water that create that lightning, that contribute to that (**Figures 10-13**). Moreover, the lightning itself, as the thunder storms develop, is actually a mechanism for creating electromagnetic radiation, which, as experiments in recent decades have shown, is actually crucial for the regulation of plant life, animal life, and the biosphere as a whole.

So, what you're getting in this process, is not only a rapid expansion of biomass, in fact, much more biomass on a smaller amount of surface area, than you even get in the oceans, so it's a incredibly fertile process that explodes; but you're building into the Earth, new types of structures. You're essentially taking solar radiation and building that across the surface of the Earth, across the surface of the planet, into the atmosphere, and into the soils, into the ground, an entirely new array of processes, and a new array of elements, a new array of minerals, compounds.

Shields: So, this makes, along with the no-empty-time point that we have on Laplace, we're really making a solid point for the idea of the non-existence of empty space.

Teng: Right.

Shields: Because you're showing that you've got the entire structuring of the oceans, the surface of the Earth, but then, this is the structuring of the atmosphere, both gaseous, in composition; but then, you're describing the electromagnetic structuring of that entire space. But also, if you include the fact that those Schumann resonances leak outward, outside of our atmosphere, you're talking about life structuring all of that so-called empty space that's outside of the planet. And that's a very different mental image than most people have. It's definitely completely opposed to what you get from the environmentalists, the idea of this sort of fixed, stable environment, that's just "there," and life lives inside of it.

Expanding the Earth's Envelope

LaRouche: The space-time myth.

Shields: Yes, exactly! It polemicizes *exactly* against the idea that you've got some absolute thing called space and time that exists there. That's a fraud. *This* is the reality of it.

Teng: Right. And in this, you begin to develop a new metric for the energy-flux density of the system as a whole. What you've got, in increasing the inner connectivity of these various biogeochemical processes, out of that, you're creating new types of materials, but you're also building into the system, new potentials. The potential for speciation, for example, vastly increases, as you bring into the symbiotic relationships, as you bring the necessary interdependence of supposedly separate species into association, the ability to have a rapid speciation, all of a sudden, increases. And that's going to be important, as the energy of the system, the so-called baseline, that we've shown with the succession of cones and the rising baseline requirements, you see, in a very vivid way, the way that the baseline increases as life colonizes the land.

That baseline is maintained through specific technological innovations—the creation of wood, stronger materials for maintaining the plants, the development of roots, the development of leaves, these types of things; the development of the form of the tree, which, if you think about the morphology of a tree, it can be thought of as the way in which sunlight would sculpt an organism on Earth, to maximize its impact. The formation of the branches, the leaves, is optimized to absorb the greatest amount of solar radiation, and to increase the surface area of the planet through the development of these leaves.

In a sense, you're actually expanding the envelope of the surface of the Earth. You're expanding the envelope of biomass to increase its interface with the environment as a whole, in the same way that the creation of the soils, breaking it up into smaller particles, increases the interface of the atmosphere with the lithosphere, with the rock, mediated by this expanding range of actual living matter.

So, in the mind's eye, now you've got a spread over the surface, a spread up, a spread down, and the baseline that's implied in that. If you had to describe it, you would say, "Well, now, if I had to describe what constitutes the environment of the biosphere, what constitutes the environment of the planet?" The environment of the planet, itself, is the creation of the process of this biospheric development, over the course of about 100-200 million years, bringing it to the point of the PT extinction.

At that point, you had built into the system new types of potentials, and you can break it down, in terms of new types of chemical potential, new types of biogeochemical flows, new types of actual movement and flows of material, all of which are refractions of the process as a whole. And then you'll see the full realization of the potentials, in the way that system is transformed in successive states.

Shields: That's important, because it also defines a whole class of animal life that is capable of existing in that period.

Teng: Exactly.

Shields: It's a single idea there. People would make the argument that, "Well, maybe this could happen by some sort of simple natural selection process. Maybe this isn't just adaptation. Isn't everything just tending towards becoming better in competing more?"

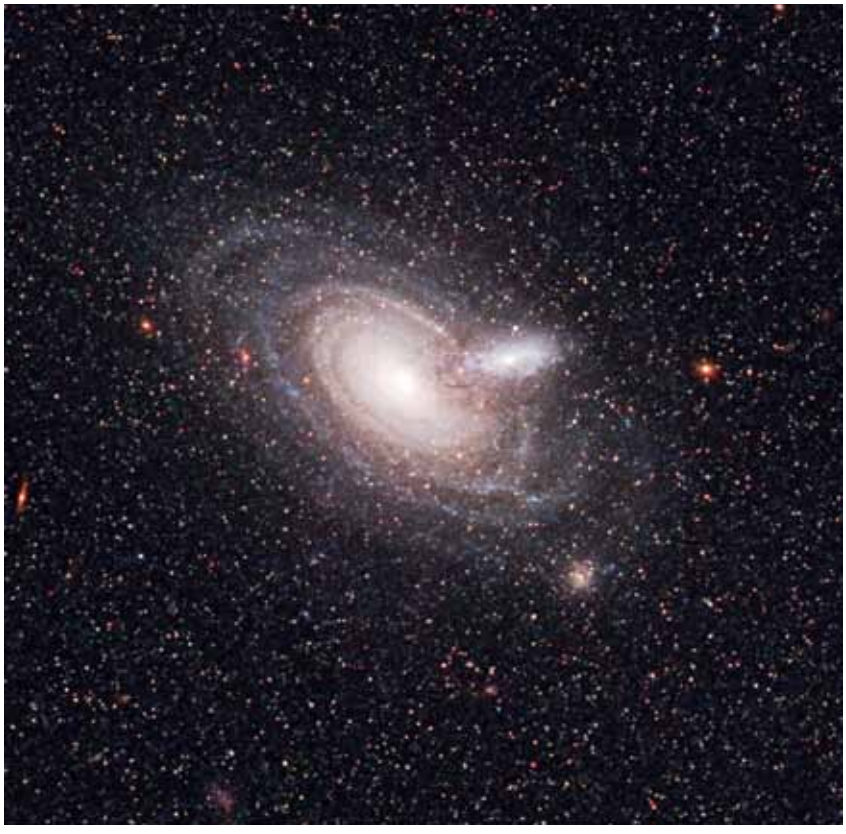
But instead, you see much less competition, and much more, what you're describing, collaboration with a very focused intent—it looks a little bit like a space program. The idea of having this concerted effort to take life in the ocean and then make it livable on land, where there's a totally harsh environment: the continents, at that time, with no atmosphere, being pummeled by deadly radiation; no water, nothing there, that was as hostile to life in the ocean as anything in space is to man right now. But you saw the intentional move to colonize that, to restructure that—that's something, where, again, it's a future state defining what happens in the past.

Teng: This idea of adaptation has engrained in people a sort of false conception of the way that evolution develops. Because it's not a passive adaptation to some random change in the environment. What you see, is life actually assimilating the hydrological cycle. You take something that maybe, before, was simply a function of evaporation off the oceans, and now, you're seeing that that process is consciously assimilated, and then, *focused*: It's actually channeled into very specific types of processes. It's channeled through the biomass into very specific, new types of species. The creation of the plant matter actually allows for the creation of complex animal life. You don't have that one without the sort of prerequisite density.

Now, if that's clear, then you have to say: Well, in the same way that life is able to assimilate the hydrological cycle, then you see a clear parallel, you see an

There is a universal process. It's not a microcosm process; it's not an interaction process of microcosms. It's an overall process which is a self-developing, a true anti-entropic process. And you look at the total energy-flux density represented by the whole system, from our record of the system, you find that anti-entropy is the dominant characteristic of the entire system. And the fact that you aren't able to maintain the rate of anti-entropy, means that your species is out of business.

—Lyndon LaRouche



NASA/ESA/The Hubble Heritage Team

analogue in that, in the way that humanity has increasingly begun to assimilate the hydrological cycle. And that's not something that's recent. You go back to the very beginning of recorded history—we have been channeling the so-called natural flows, into various irrigation systems, and so forth. Those are some of the oldest human structures on the planet.

Universal Anti-Entropy

LaRouche: You're citing the question of universal anti-entropy.

Teng: Right.

LaRouche: That anti-entropy is the characteristic of the universe.

Teng: Exactly. And the idea of adaptation is a way to try to obscure that, instead of saying that what you're creating are the preconditions for the future state. The future state is not something that you necessarily—in fact, you *don't* know what it is, you can't define it before! What you know, is that the process is characterized by forcing existing conditions into a potential.

LaRouche: What we were discussing the other day about the universal system: The system works from the top down, and the top is moving upward. In other words, a true anti-entropic system.

Shields: We're familiar with that in case of human creativity.

LaRouche: Exactly.

Shields: That we know that hopefully, for most people, when you're speaking a sentence, each word does not create the word that comes afterwards.

LaRouche: It's not so much the words, so much, because words are actually a derivative—

Shields: Yes, exactly!

LaRouche: But what you're dealing with, is the fact that the human mind introduces a factor of anti-entropy, which does not exist otherwise. And the animal species don't have it, only the human mind has that particular kind of anti-entropic potentiality.

Shields: Through the ability to work with ideas, as opposed to the derivative ideas.

LaRouche: Which goes back to what we were talking about at the beginning here: That human creativity, that is, anti-entropy, the rejection of entropy, the rejection of all this kind of crap we're getting now, *is the essential precondition for the existence of the human species. The environmentalist of today is an enemy of the human species!*

And now, in the case of the British and the old oligarchs, this process was a process of social control, where you had two antithetical parties, and one was the ruling class, the oligarch, and the other were the cattle. And the oligarchs would kill off the cattle, and prevent the cattle, human cattle, from developing. Because if the human cattle develops, it's no longer controlled by the oligarch. And that's your British system, that's the Obama system: Obama is the enemy of humanity, because he's the enemy of the principle of humanity!

Shields: And rigorously defined. The idea is, try to keep a fixed population, trying to keep a fixed set of rules for social operation, that's what an empire is.

LaRouche: But look at the effect of this. Look at what we're getting right now. We're getting the destruction of civilization in the United States. You have the whole series of destructions, since the killing of Kennedy. We've had a regressive tendency overall, with some spurts of progress in nuclei, but then, more and more aggressively, the destruction of those little nooks and crannies which still represented creativity. We're now on the verge of *willful human self-extinction*, which is represented by the Queen of England and her slave Obama. And by other people.

And in the case of Asia, as in China and the other Asian countries, now, you see a resurgence of an attempt at growth, because of the same kind of thing: You try to do one thing, that's not enough; you have to invent something else, acquire something else to make it grow, you have to take a population from a low level of productivity to a higher level of productivity, which is what's happening in Asia.

In Europe, you see exactly—the Trans-Atlantic region—*exactly* the opposite process!

Now, this thing in Asia is not that promising, but it's an exception to the downward tendency, which you're getting in the Trans-Atlantic region.

Shields: Right. At least the flavor is right. You see total collapse in the European side.

LaRouche: You're seeing exactly what Oyang's talking about, in this context: You're seeing an anti-entropic universe, characteristically anti-entropic; instead of trying to look at these things as causal in the small, that is, interaction, you look at this as a process which is determining what we call interaction. Which is the theme of what you were doing before. In other words, if you look at the process as a universal process, rather than a building-block process, of building-blocks building building-blocks, which is what the ordinary explanation is, you see that the universe has a characteristic. And where you try to understand the galaxy, a phenomenon like we have now, there, you see a completely *contrary* process is universal.

Shields: Right, and the idea of trying to make the adaptation, the natural selection, free trade—the idea of free trade or the markets. Anybody who says the "markets are going to define economics"—these are all meant to obscure exactly that. They're meant to try and make a different argument.

LaRouche: Yes, but I was pointing out, with this thing, the case he [Oyang] presents, I think—I interrupted here, because it's so important to emphasize this: That there is a *universal process*. It's not a microcosm process, it's not an interaction process of microcosms. It's an overall process which is a self-developing, a true anti-entropic process! And you look at the total energy-flux density represented by the whole system, from our record of the system, you find the anti-entropy is the dominant characteristic of the entire system. And the fact that you aren't able to maintain the rate of anti-entropy, means that your species is out of business.

Ben Deniston: Right. It's a process that defines the species. The species are bounded by the process.

LaRouche: Well, it's more than that: That is, that the progress of the process is the condition for the existing life of the species.

Deniston: Which is the irony of all these mass extinctions.

LaRouche: Exactly: That what killed them was the failure to develop.

Deniston: That's when the biggest mass extinctions correspond to the biggest shifts in the whole system.

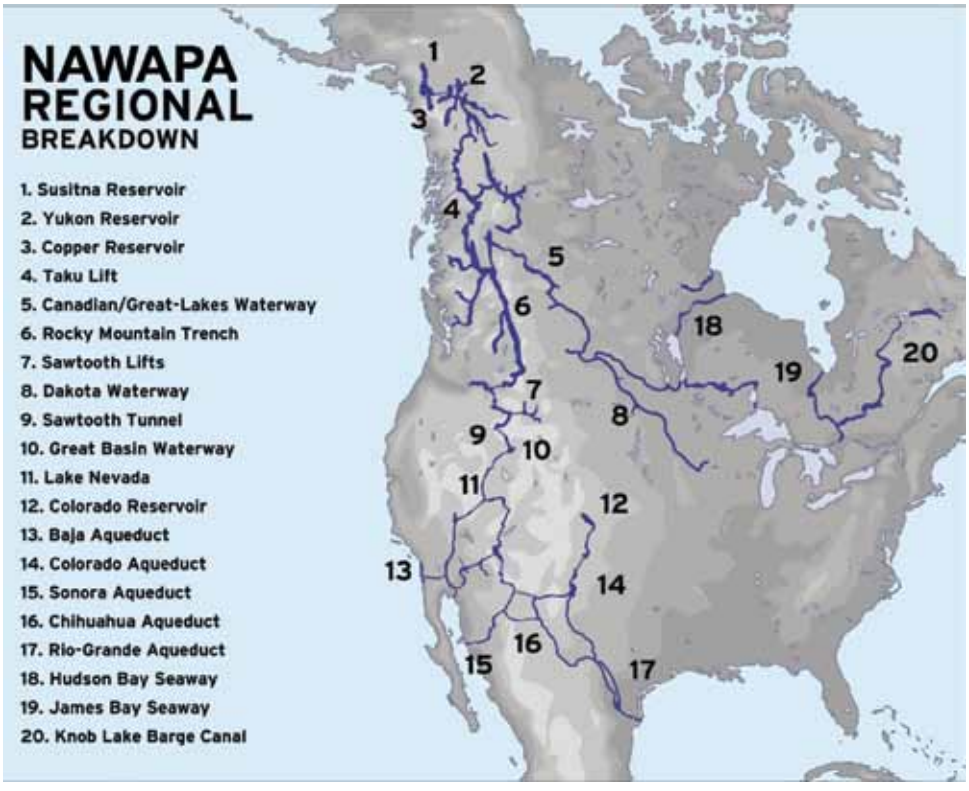
LaRouche: Yes, so therefore, you get this complementarity.

So, what you're looking at—I know Sky will deal with this later—what we're dealing with is the fact that this process itself is self-creative. And if you try to explain this in kinematic terms, you end up with nonsense. It's the process as a whole. A society, for example, is a similar process, a society that's progressive: It's starting from elements, adding other elements, acquiring them and you find progress.

Then you have the other kind of society, which goes to extinction. All empires go to a point of extinction! The British Empire is going to a point of extinction

now, and it's trying to save itself by eating the rest of the world. The United States is being self-destroyed. The United States has become a self-extinction phenomenon under these influences. Since the killing of Kennedy, it's been in that direction.

FIGURE 14



The North American Water and Power Alliance would take some of the water that flows north from Canada and Alaska into the Arctic Sea and reroute it southward, to the desert areas of the United States and Northern Mexico.

NAWAPA and the Biosphere

Shields: What's nice is, if you look at this overall arc, of what you're laying out, it does define some very clear policy directions. One thing that you've gotten, that you [Teng] can lay out now, is the actual role, the relationship of NAWAPA to this overall process of development that you just described. Because it's amazing, how clear it is that what we're talking about is advancing that same kind of approach.

Teng: Yes, if you take the process in human development, the refractions of that tend to leave similar kinds of fossils. The number of actual chemical compounds that exist, are known to exist, has increased geometrically, especially in the last few hundred years, since the Industrial Revolution.

LaRouche: That's the difference between man and the animal. We're a completely different kind of species than the animal.

Teng: Yes, and it would be evident to this creature viewing the planet from above. Take the hydrological cycle as a baseline, as you entrain certain flows of that. I mean, NAWAPA is really just the floor plan of where you have to go. It is, itself, 50 years overdue. But you take a quarter of the precipitation on the North American continent, a certain amount of that which is running off, 20% of the runoff, you bring down. Because, you realize that, just in the same way, for example, that life had to free itself from the caprices of the water cycle—look at the development of seeds: You're compacting a process, the fertilization; you're taking that which, under the spore system, had to occur in open puddles of water, and you're compacting that now, into a protected seed, which has a greater investment of nutrients and energy density, but a greater potential to spread itself and increase the overall process.

We, similarly, have to free ourselves from the embedded problems in the rainfall cycle: Certain places get rain, certain places don't. There's no reason that we should be constrained within a system defined by that kind of process. But it's a question of taking us to a point, really, just a baseline point, from which we're going to have to develop.

NAWAPA is a seed crystal, as you take the continent as a whole, as you redirect the flows and create artificial rivers, and included in that, is expanding the power available for industrial processes and other things. That's only a seed crystal, the spark for creating that same process around the planet. And it links very nicely, across the Bering Strait, into Siberia. It links very nicely to the Aral Sea project, to projects in South America, across the Darien Gap.

So we have to similarly build into the system, the

crises, which are good! We build into our own process of development, the crises that we know we have to overcome. Life successively runs into crises which are not conscious in that sense. They require a change in the system, and a change in the system always involves the wiping out of certain species and the creation of new ones.

We deliberately drive our systems to points of crisis, but we don't have to wipe ourselves out in the process—that's the difference.

Shields: Compare that to the arguments of the environmentalist: The arguments that are leveled against NAWAPA as a project are specifically that. The argument is: "Well, this is how the system is right now; you can not change the way the system is right now, we're going to keep it here." You know, "This species is endangered, we're going to hold onto it. These water basins are not connected; we will not allow them to connect."

The argument is quite literally, that "we are going to attach ourselves, as much we can, to one state of this system. We are going to consciously choose to hold ourselves to this specific state of the system." Now, we know, that that system has to collapse at a certain point, the attempt to try and hold that system still drives it to a collapse point, like you said with empire.

The reason all empires collapse, the real corruption there, is, it's not as though the empire did something "bad." It's not as though the empire was successful for a while, and then did something wrong. The attempt to try to and hold that closed system there, and to prevent human creativity, to prevent the actual evolutionary development, the attempt to do that will drive you to a collapse point.

Empire: An Entropic System

LaRouche: We have two things. One thing is to take into consideration, what is *intention*, as, what is a different kind of process than we would normally think of as intention. In all these cases, the intention of the universe, as we've just been discussing it, the intention of the universe is always to go to higher and higher states of organization. In other words, the universe is intrinsically anti-entropic.

Now, what happens if you have a system, which is not anti-entropic by exception, but the exception is entropy? Now therefore, if the system is anti-entropic, and you're trying to impose an entropic condition upon an anti-entropic system, what happens? You get a kill. And what kills them is the anti-entropy. So that's the process we're dealing with, here.

Shields: And any closed system will be entropic.

LaRouche: Exactly. And this is the essential principle, which is what many famous people have talked about, in terms of—

Shields: Carnot?

LaRouche: Well, not just Carnot; I'm thinking particularly of Biblical figures, where the argument was that the process of creation of the universe—this is the old Biblical system—the process of the universe was limited, and it cut off at a certain point. And therefore, that causes the kills.

Deniston: The Aristotelean argument.

LaRouche: And you look at the characteristic of societies: All societies of the type we could call imperialistic or proto-imperialistic, have this characteristic. You have a society that moves in, like southern Mesopotamia, the Hittite area and so forth; they move in, at a certain point, and develop. Then, they come in, they impose a barrier, and the barrier then results in a collapse of the system. Every system we know of, human societal systems, tend to go through these kinds of collapses, and the collapse is based on trying to keep the same old, same old, same old. And the minute you do that, you find a destruction of the system.

The failure to progress, the failure to go to higher and higher levels of technology, expression of technology, is a killer! Take the Roman Empire: The Roman Empire came into existence, because other empires had been killed before, other oligarchical systems had been killed by self-induced destruction. The Roman Empire was a case of self-destruction! The Byzantine Empire that came up to replace it, was destroyed by self-destruction. The Chivalry system was destroyed by self-destruction.

And now we're getting into the British system, which is the fourth Roman Empire in effect, historically, which is now trying to absorb the United States, to crush *it*. Because the United States had been the greatest threat to the British Empire, or the fourth Roman Empire.

The fourth Roman Empire has been crushing the United States. Now, you find a coming back of China, a new development in Russia, developments in India and so forth, which are going to try to fight against this process. What's happening? The British Empire, in the process of destroying itself, is determined to destroy China and India, and Russia, among other points.

Russia is now in a re-growth pattern; it's not a very impressive one yet, but it's re-growth. China has major re-growth; it's coming up to a problem level. What we're talking about, in terms of development of the Trans-Pacific systems and so forth, what we're talking about now, is we give them a way of continuing progress. If we continue progress, they will survive, they will progress. If they try to consolidate their position, within a fixed framework, where you say some people in the system can cheat, they can eat up the other people in the system—now, what that does, is it becomes repression of the process, and then we go back into backwardness.

It's happened in the United States, repeatedly, in the political system. The political system on which the United States was created, has been destroyed by British influence, repeatedly. It's now self-destroying. You look at the legacy of Presidents, how many Presidents of the United States were crumb-bums? Just think of them! Just think of them, they were skunks, real skunks! And they always represented a British influence *inside* the United States, going through Wall Street and Boston and places like that, initially, which were British havens.

What's happening with agriculture? We have an irrational system of control of seeds by monopolies. The seed controls now prevent us from growing food! The whole system is now based on preventing a food crop! The international food cartel is determined to try to control population, prevent population growth. Monsanto is one of the worst criminals in this operation.

So what we have, is the general failure of society to recognize that the European system was wrong, that the oligarchical system is wrong. The zero-growth argument is wrong. The oligarchical system is wrong. That, as we have demonstrated in the United States development, and others have demonstrated, if you allow the human mind to be developed, and allow an anti-entropic tendency in society to work, society works! The human species works. If you try to *stop* that, and have a fixed system, impose a fixed system on a human population, it becomes degenerative. And *right now,* we are globally, especially in the Trans-Atlantic region, especially in the North Trans-Atlantic region, we are in an area of *self-destruction*.

And what we've had as our Presidents—two Bushes and this guy—this has been a force of the *willful self-destruction of the United States.* And you have the awesome spectacle of people who were decent citizens, so to speak, actually adopting an *idea, which ensures their destruction!* Could there be any worse insanity than that?

But we have an incumbent President who is not only clinically insane, but his policies are insane. Which is probably why they selected him for President. And we have that pattern in the world at large. We have the willful, so-called zero-growth policy: the willful destruction of the human species by the rulers of the human species.

You have resistance from China, which is saying, "No, we're going to grow again. China grew in the past, we're going to pick up everything around that's good and do that." Russia's going through an attempt in the same direction. There's an impulse like that in India. There are impulses elsewhere like that. Wherever there's an impulse like that, you find the British are organizing all the other clowns on the planet to gang up against nations which are actually trying to progress.

The Wrong Way Down a One-Way Street

Teng: And the character of that progress, I think is important, is actually defined by commitment to nuclear power. Take the solar power policy: Here's a good example of going the wrong way down a one-way street, in terms of the rising requirements, the baseline concept. The distinction between the action of chlorophyll, particularly when it's now embedded in plant life, in what it's capable of doing with sunlight—taking the relatively low-energy-density impinging sunlight, and transforming it, creating a higher potential through the contribution of the water cycle, through the creation of complex sugars, carbohydrates, and so forth, and supporting the structure of this whole process, versus the process in a solar panel, which is actually degrading the energy, largely into heat, and a tiny whisper of electricity, which may have been sufficient for the dinosaurs, but when applied to the system now, if you take it to the logical extreme, in its systemic characteristics, you would actually be increasing the deserts.

You know, they want to cover the deserts with solar panels; you'd be lowering the overall net process of growth that's required by the system as a whole, and so, the Greenies, in pushing solar panels, are actually putting themselves toe to toe, opposing the actual growth of green plant life.

LaRouche: Right, it's suicide by another name.

Deniston: And the opposite of the process you just described, how life created the requirements for further spread inland, they would be creating the necessity for further desertification, desert development: It's the

EIRNS/James Rea

The character of human progress today, said Oyang Teng, is defined by the commitment to nuclear power. Here, anti-nucleasr hysteria in Berlin on March 23, 2011. The sign reads, "Better active today than radioactive tomorrow."

exact opposite of what life did itself! The result is the anti-Green policy in its essence.

Teng: Not to mention that it kills bugs, but that's another thing.

Shields: As opposed to nuclear power plants, where you can grow other plants on top. It's not the most important, but you can have a little garden on top of your nuclear power plant. No garden on top of your solar cells!

Yes, it's clear that it's the texture; what is the ontological texture of physically developing time? And it's inherently paradoxical from any simple mathematical, even simple geometrical model. Because the idea of—what is a paradox of a self-developing system? Again, you laid out, in detail, some key elements of this in a series of papers, but you had a very dense form of it in your "Obama's Armageddon End-Game."

LaRouche: I've got to finish one, which does a crucial thing on this!

Cusa: There Is No Fixed System

Shields: Okay. It's going to be a solid arc; I mean, this is going to form a text that people need *in detail*, because it is a real paradox: What do you mean by self-development? Very early on, Cusa, in his *On Learned Ignorance*, lays out the fundamental paradox in this: You know, you get the simple, fundamentalist religious idea, well, God creates the universe. But, if you really take the thought, if, fundamentally, these physical processes really are manifesting creativity, mind, in a way that reflects the creativity of the individual human being, somehow the whole process does. How?

LaRouche: Go further than that: Take the *De Docta Ignorantia*. Now, this has a number of significances, but it boils down to this: You had the worst of the collapses of the Roman Empire, which was the Crusader period, the worst destruction imaginable, in the period from that, actually in the beginning of the century, about the time of Cusa's birth [1401]. What he developed in *De Docta Ignorantia*, was that essentially, the fixed system that we're living within, or assume we're living within, this fixed system does not work; it's a failure. That's the meaning of *De Docta Ignorantia*: that it's what we *don't know yet, because we haven't created it yet!*

The entire system of all modern European science was actually presented by Cusa in that work. That's what Kepler was, that's why the British hate Kepler, and people like that hate Kepler. Because Kepler posed this question, and you find in physical science, that everyone who, like Leibniz, was *hated* for this reason; and you have only a minority of great leaders in science, who at various periods of opportunity, actually developed science in a positive way and society in a positive way—a very limited number of people.

Take the cases, for example, of Max Planck and Einstein. Some of their work, which was developed at the end of the 19th Century and beginning of the 20th Century, was held stagnant by people like Bertrand Russell and company, and these clowns. And we have come to the end of that, the destruction of 20th-Century civilization by the influence of people, of swine, like Bertrand Russell.

Now, we come to a point where you have people who are on the outside, like in China, a new current in

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LaRouche said that the principle of Nicholas of Cusa's "De Docta Ignorantia" is "that science means synthesis; not the proof of what is, but the synthesis of what must become." Shields is on the right.

Russia, and so forth, and are trying to move forward. And the British Empire, which is the Empire of Evil, and with its people like Obama, who's purely evil, an insane man! I don't know how evil you can call him; he's clinically insane, and somebody decided to make a clinically insane man President of the United States—that was not exactly the brightest idea that was ever concocted.

So that's the kind of situation. And the principle of the *De Docta Ignorantia* is exactly that: that science means the synthesis, not the proof of what is, but the synthesis of what must become!

Shields: Right, the opposite of deduction.

LaRouche: Exactly.

Shields: People have a lot of trouble with that. They say, "Well, isn't everything either deduction or induction?" But it's not creativity. The way Cusa defines it there is a completely different process.

LaRouche: You get this thing with Vernadsky. Vernadsky has a similar kind of influence, and he has a seminal influence, as Cusa did. A similar kind of thing, it goes to pure creativity. That's his definition. He understands these phases of existence of life, non-life; life and conscious life, consciously creative life, as being different qualities of *existence*. And that's the issue. Then the Communist Party of the Soviet Union killed itself, by rejecting what he represented.

So this is the issue, the same issue you [Teng] were describing in a different sense: It's the process of creativity, which is natural to the universe. The universe is natural.

'Pulling Up' Evolutionary Progress

Shields: If we look at some more of the qualitative changes through this period, you can get an idea that there are these metrics that are a shadow of this other process, and let you see that this character of self-development, this character of what the *Learned Ignorance* of Cusa describes, has an ontological character. It's not just how you think as a person—it *is* how you think as a human being—but also, he's describing there, something ontological about the so-called objective physical universe. I say "so-called," because that distinction is not as hard and fast as people like to make it.

Deniston: Well, in what we did last week, one of the ironies that we discussed, is the irony of the extinctions themselves, because you have the system determining the species; it's not the kinetic interaction of the species that's determining the overall process. You have something else pulling the whole thing forward, like you [Shields] discussed very well with the case of the feathers: the independent, repeated, attempts to bring in this new system.

But then, it's worthwhile just to make the point, to take one of the largest of these mass extinctions, the PT mass extinction (Figure 1). Not only was it one of the largest—the different estimates range up to 96% of all species that existed in the Paleozoic era were wiped out at that time—but it also represented one of the largest upshifts, across the board, from life on land, life in the oceans, plant life, fungal life. You had this rapid increase in the overall energetic activity of the biosphere, and we're going to do more to pull this out in consolidated form. Species come, species go, but underlying this entire process, has been this constant increase in the amount of total energy usage of the biosphere—more sunlight taken in, taken into higher and more complex forms; taken in, becoming denser and denser forms of energy. Total spread of plant life, where it can actually take in more total sunlight. And the increase—you see it in the metabolic rates, you see it in the consumption, the constant increase in the energy requirements of each species, and you see a qualitative increase, as we discussed, in what the different species can do.

Shields: And as you pointed out, as you look at the

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Shields and Deniston pointed to the irony that the largest extinctions are the basis for the upshift of the whole life system; that in order for a single animal to do something that might look creative with respect to new evolution, it actually has to die.

dominant species in each of these stages, you get a shift. You look at the change in the apex predator, and then the whole system is designed to support that so-called apex predator.

Deniston: And you see in the whole Mesozoic, in the first system, you have this amphibian-dominated system, moving to the reptilian-based system. But the point that we're getting at, is that there is a principle that underlies this succession of species. There's a principle that underlies the whole process, and that's what determines which species make it, and which species don't. And you see it very clearly. There are other examples of major extinction events, major shifts, but these two we've pulled out are very clear, because you have two of the largest mass-extinction events. But they also express two of the largest total upshifts in the energy of the whole life system, the whole biosphere.

So you have this irony: The largest extinctions, well, what are they? They're the largest increase in the upshift of the whole life system. And it's this that defines progress, not as just a "good thing"; this defines progress as an absolute necessity for existence.

Shields: Right, rigorously definable. As you say, you look at the whole—all the elements that you see as you shift from the Paleozoic to the Mesozoic. If you now continue the arc that you were describing, Oyang, with this sort of motion onto land, independence from the ocean, the degrees of independence, you see clearly, as you described the whole system, including amphibians, ferns—what do they have in common compared to the later, the Mesozoic system? Through the reptiles, seeding plants? There's a whole other level of encapsulation that's there, encapsulation, independence.

Deniston: That's very interesting. You see it, paralleled, in these apparently totally different, seemingly different types of life. As you mentioned with the fern-based life, the ferns required nearby water and a moist environment to reproduce, because they released these spores, and they needed to intersect each other in the water to reproduce. The amphibian system, which also dominated during this same era, requires the water-based system to reproduce. You see this parallel characteristic, over this first system that we've identified here.

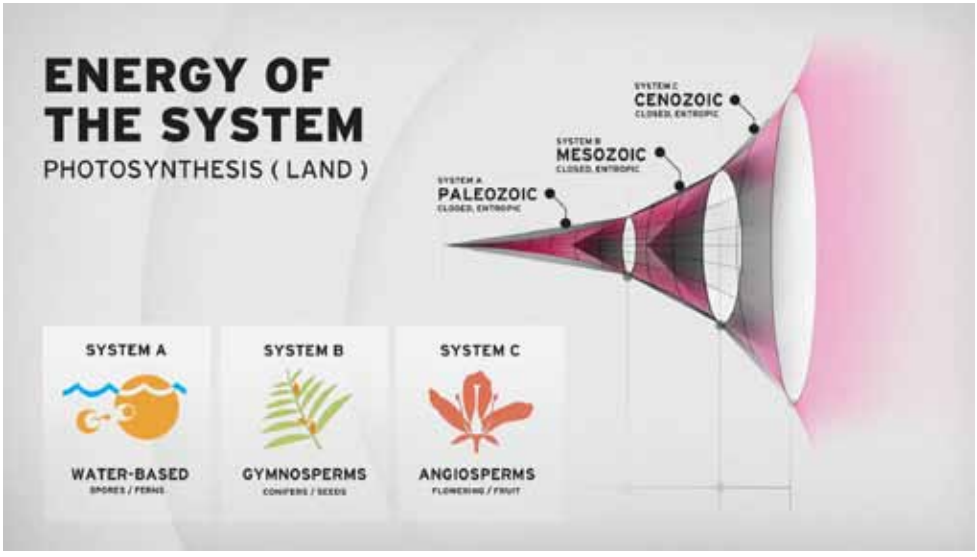
Then, with the shift at the PT, you had not only the development of seeds with the gymnosperms; again, they came in earlier, they began to develop, similar to the feathers case.

Shields: Can you give people an idea of the gymnosperms?

Deniston: Yes. People are familiar with conifers, the pine trees—you have the beginning of a seed form of plant life, as Oyang discussed. That then becomes the dominant form of plant life for this whole Mesozoic system (**Figure 15**). But then, in parallel, you have a similar change, which allows the plants to move further inland; they're not tied to the water cycle to reproduce, the same way the ferns were. Then, very similar, you have the same quality of shift with the animals as well, shift into reptilian-based system: The reptiles are no longer tied to the water system to reproduce. They have these enclosed eggs, with nutrients, and liquids, and whatnot needed to support the developing new organism. So they can move further inland. So you have this very stark, parallel development, as a whole system moves to a higher state.

And it totally destroys the whole kinetic conception—that it's just a sequence of one random change to the next—when you have these entire plants changing, animals changing, fungal life changing, ocean photosynthetic life changing, all corresponding to these system shifts. And I think we have to do more to present the full details in video form.

FIGURE 15



The Past Is Created by the Future

LaRouche: We've got one key to that: What we've been saying in this hour and a half or so, essentially is, that the past is created by the future. Because, when you look at the way the process of evolution is determined, it's always determined from the top down. The idea precedes the discovery: This is something which I'm going to deal with on other occasions, much more rigorously, but that's the way it is.

What creativity is, it comes from the organization of the system, which organizes from the top down. The idea organizes the process; that's a crude way of putting it, but it does explain to us what the problem is, that the potential for development defines development. And the idea of a Creator, a religious notion of a Creator, is based on that: that you don't have individual, little "things" crawling around; what you have is a massive process, called the universe, and you have sub-universal processes, which are always located, not in time, as time is defined—Laplace would have a terrible time with that point!—but rather, the future is actually embedded within us, and it's the creativity of mankind, which makes this a question of *consciousness*: We can be conscious of the future.

Other forms of life, like animals, are not really conscious of the future. They're motivated, somewhat, in that direction, but they never actually create. They do innovate, they express an innovation. If you influence the animal, if can you train it, the animal will actually acquire behavioral characteristics which resemble human characteristics, but the animal has not got human characteristics. You, by association with the animal, have induced a human-like characteristic of future-orientation, which no other species has.

But the whole system, itself, at the same time, is organized around future orientation.

Shields: And the irony: In order for that single animal to actually do something that might look creative, it actually has to die. In order to get the new creature, the new evolution, the old animal vanishes.

LaRouche: Or species. Or a type of species, yes. But the point is, since the system *is* a system, the system is disposed to self-improvement. And so, everything in the system is absorbed by this self-improvement.

So instead of thinking, looking at progress as *pushed*, think of progress as *pulled*. And pushing is down, and pulling is up.

Shields: And then, you get the real fraud of all of these monetarists who try to argue, "Oh you should not plan economies, you should allow the markets to handle it, you should allow free trade to handle things."

Economics and Creativity

LaRouche: That's a swindle, that's an absolute lie that people believe in. It doesn't work.

Look, I've been forecasting professionally—well, actually, 1956 is when I did my first forecast, and I was unique and I was the only one who made that forecast, and the recession hit at exactly the time I said it would. Ever since that time, all forecasts made by my so-called rivals have failed, and I've always succeeded. Now, admittedly, I've made only a few forecasts, about a couple dozen is all, but only made them when I knew what I was doing. Which meant that I did not always have the opportunity to know what I should be doing.

But every forecast I've made has worked, in exactly the terms I did it. The problem is, we get people who think in terms of a money-profit driver, and they don't realize that money itself is a faker. The reason why fore-

casting fails, is because people believe in money, or believe in a monetary system. That's why they fail.

Because, actually, wealth is developed, not by money; wealth is developed by productivity, by creativity. By the application and the realization of creativity, whether postponed creativity or some other form of creativity. Wealth in the sense we define wealth—we define wealth sometimes with animals, but we influence animals. Most of the animals of the planet exist only because man has maintained them as living forms. We raise cattle, we do all these kinds of things, we cause it.

And so, mankind has creativity, but what creativity is, is an apperception of the future potentiality. Which means it takes the form of the discovery of principles. And you find that a typical [economic] forecaster is intrinsically incompetent. I mean, I've been doing this for decades, and every one I've been up against, of the opposite type, has always been wrong! So why do they stick to the system? Because they they're committed to something. But what does it mean, their defeat, what do these bankruptcies mean? What does this collapse of civilization mean? It means the wrong policy of practice is going into effect!

Things are getting worse, much worse, since Jack Kennedy was killed; the actual trend in the U.S. economy, physically, has been down. It's been up and unevenly up and down, but it's been there: We have become worse and worse and worse, in terms of our economic prospects, since Jack Kennedy was killed, and especially since his brother was killed, because if Bobby had lived, he would have been President. If he'd been President, he would have attempted to follow his brother's—his and his brother's idea. We maintained some of what the Kennedy spirit was in the space program: He created it. He created other things—like NAWAPA was actually a creation of his.

So we had these programs which represented forward movement of civilization, especially in the United States. These were effectively killed, by what? By *lo-o-ng wars*! Ten years in Indo-China! Long wars. Russia got into a long war, a few long wars. Others got into long wars; we're getting long wars again, long wars in the Middle East. We're headed for a real killer warfare, global thermonuclear warfare, which is on our table right now!

So we can learn something from this, if we just look at this, this way: that the universe is characterized by creativity. Creativity comes first. The universe is always going, higher and higher energy-flux density, that's its direction. That occurs as creativity. But we're moved by creativity—plants, everything, is moved by creativity, some sort of manifestation of creativity. Mankind's willful creativity is crucial for the civilization. And that's what's being suppressed now.

Progress or Extinction

And the other side of this is fear: It's fear of the opposition that does not want creativity. Why has the Democratic Party given up on trying to get rid of this bum, this Obama? They've given up on this thing! If the Democratic Party carries out its policy, in the next months, the policy it has recently adopted for purposes of the election campaign, the United States is finished! If the Democratic Party policy right now, is carried forward, *the United States will be finished this year.* And those who are controlling the Democratic Party, who are leading it, even people who I know, who are intrinsically would be good people, are making that mistake *out of fear*, because they're afraid of taking on the British and taking on Obama.

And you have the Republican Party, the leadership there—Mitt Romney, *that's a disaster for the United States! An absolute disaster, unbelievable.* He's a real monster. He's not as insane as Obama is, he's just evil. But you don't have to be insane to be evil.

But that's the case in this case.

The problem is, we lack an insight into the intention which ought to be associated with the nature of humanity. And we see it in terms of this study—what we're doing here today, is merely touching the surface on this whole question. But this is where our decision is: This is what every American citizen out there really is confronted by, that decision, whether they wish to make it or not.

If they don't get rid of Obama, the intention of the British Empire, which has a puppet called Obama—. The British system is now on the verge of extinction, as in many kinds of Roman Empires before this, and similar kinds of empires before, have gone into an extinction mode, because they would not adjust to reality. That's what happened to the Roman Empire; the first Roman Empire collapsed, it degenerated! So then they got a new Roman Empire, the Byzantine Empire—degenerated! Then you got the Venetian system, called the Crusader system—degenerated! And then we had a renewal of that, with various attempts at a new empire, which ended up with the British Empire, which was

formed by the New Venetian Party of William of Orange, who came from the New Venetian Party from earlier.

So that's the kind of system, where we have a situation in which people are induced to behave like animals, that is, to go away from creativity, to go to conservatism, that is, not to be creative; and we're in a situation now, where the entire Western Hemisphere, the Trans-Atlantic region, especially the northern part, is now going to an *extinction mode*! Europe is in an extinction mode. The United States is in an extinction mode. And as long as you have Mitt Romney coming up and Obama behind us, or whatever, we're in an extinction mode.

And the question is, how many people in the United States have *both* the brains and the guts, to change it? And it's time for some attention on some of the science of this matter. Because what most people believe out there, today, from schools and so forth, they're absolute idiots: They have no conception whatsoever. Their education tends to be a *de*-education!

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"My Democratic friends," said LaRouche, "have foolishly decided to back off from opposing Obama, on the basis of partisan considerations. They're making a fatal mistake." Shown are LaRouche PAC activists at a demonstration in Phoenix, Ariz. on Jan. 25, 2012.

This is a crisis for all humanity right now, and it's an immediate crisis. Every week ahead is ominous. And we're on the verge of a *global thermonuclear conflict.* The submarines of the United States in the Pacific Ocean have enough thermonuclear capability to be used, which would mean a mass extinction on the planet, if that and other nations got into a rivalry on thermonuclear exchanges. And, we are, right now, under Obama, and under the control of the British monarchy, *we are headed for a human extinction phenomenon, called thermonuclear war!* And it can happen any time.

Some of us have delayed that war from happening; some of our chiefs of staff and so forth, have contributed to delaying that process. But the process has not been taken away. *And the Democratic Party's collapse, to submit to and support Obama, is an act of willful mass suicide!* Not only of the party, but of most Americans. If they don't change their habits, they're going to find out how dumb they've been.

Shields: I think that's a good, solid point to end with.

But again, we're going to have a lot more of sharpening this, but the need right now, to evade extinction, I think is absolutely clear. The steps we're going to be making clear.

LaRouche: Well, we're already on the course on this thing, right? The point is, we know how to deal with this, from a standpoint of policy. And if we change this policy, we can solve the problem. The capability still exists: We've got to stop this war from happening. We've got to get rid of Obama, out of office. He's clinically insane, and he can be thrown out of office for being clinically insane! And he *is* clinically insane! There's no doubt of it.

The British control over Europe is breaking up, because what happened is, that some of us had the guts—and I've made my effort in that direction as well—had the guts to cause the postponement of what was intended to be the countdown into thermonuclear war, which was supposed to occur right after the killing of Qaddafi. So, various forces, including people in our own country, caused a delay of that process. As a result of that delay, the European system, which was going to be gobbled up axiomatically, by the British Empire, through the euro operation: The euro operation is now disintegrating!

And my friend Jacques Cheminade's relative suc-

cess in his appearance as a Presidential candidate for France, typifies that (see article in *International*). There's a breakup in process. The French and the Germans are no longer allied for the euro—they can't be allied for the euro! The euro system is hopelessly bankrupt! The U.S. economy is hopelessly bankrupt, financially, now. Without the combination of Glass-Steagall and a reform in our monetary system, we're out of business soon.

And all these idiots are out there, contending, like this crazy Mitt Romney, a greedy bastard, who wants all kinds of greed satisfaction, but he has *nothing* useful for the human race. Obama's worse than that. And so, you've got a Republican Party, you've got a Democratic Party, you've got an election year, and there's no competence shown by the leadership of the Democratic Party, no competence shown by the leadership of the Republican Party.

Woe to the United States, unless we do something about this!

And so, those Democrats in particular, I don't think you could get a good Democratic vote, or a good Republican vote; I think there are good Republicans out there who might become candidates, or are; and the Democrats as well. I don't know how it would come out that way, but we could, theoretically, compose a Presidency: Just put this garbage aside. Obama, garbage! We don't want any renewal of that! Mitt Romney, garbage! We don't want him, either, he's almost as bad. But if we don't do that, this nation's not going to survive. And we have to do it, this year.

And my Democratic friends, for example, who foolishly have decided to *back off* from opposing Obama, on the basis of partisan considerations, *they're making a fatal mistake.* A potentially fatal mistake. It could kill many of them, because I know what's sitting out there. *If Obama were President—I know what Hitler did in Germany, would be at the first, relatively mild, compared to what Obama would do. And any American who'd vote for Obama, must be one of the most stupid or most frightened people on the planet, or cowardly on the planet.*

That has to happen. Right now!

Continued in this direction—Democratic Party in this direction, Republican Party in this direction—this nation is finished, civilization is finished, unless a change comes. They ain't so smart as they think they are.