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The Extinction of Empire

Following is the transcript of Part 2 of the Jan. 26 LaRouchePAC Weekly Report, *featuring a special presentation by Sky Shields and Ben Deniston entitled* The Extinction of Empire. *Sky and Ben demonstrate how the anti-entropic upshifts of the biosphere demand corresponding upshifts in the species of the biosphere, to higher energy-flux densities of consumption, otherwise those species go extinct. No species can willfully make such upshifts, except one—man. However, the characteristic of such an upshift is the very opposite of the prevailing dogma of "sustainability", which bans progress to higher energy consumption, and forces human society to deny itself its natural technological progress. Under "sustainability", mankind is sending itself extinct. Part 1 was in last week's Almanac.*

SHIELDS: Yeah, I'd like to try out a couple of elements from this. I mean, take a look at—so, think about what you mentioned on the question of the development of fungal life. So, across each of these breaks, you've got a development of fungal life that increases this biogenic migration of atoms. We discussed that if you could put on your glasses such that you could only see carbon, or such that you could only see, in this case—say you put on your glasses and all you could see was phosphorous. And you were to take a look at this whole arc of development across these major breaks, and you'd see a couple of things that are very interesting about how phosphorous moves.

Now, again, at this point, you no longer see your individual organisms; you see a whole system that looks somewhat continuous, though marked by singularities. There's, around the PT extinction, you begin to see something interesting, because the PT extinction is very skeleton specific, and this was something that sort of remains an anomaly to this day. There's lots of explanations, but the extinctions selectively picks out, across the board, a certain type of composition of a skeletal composition; it isolates skeletons that are predominantly calcium-carbonate skeletons, but then leaves alone, and broadly, skeletons that are calcium-phosphate, like our own.

As a result, you start to see, now, the predominance of the calcium-phosphate skeletons, as you look at that shift, you can start to see—say we got our glasses, again—we're only seeing the role of phosphorous, suddenly you're seeing the increased migration of phosphorous as a plant or taking this as one case study off our periodic table here, but for each of these elements you'd be able to sort of trace a life history in this way, and it will always tend towards this element of increased density of the circulation of it, the amount of it being pumped through any of the singularities.

That develops through the whole Mesozoic. At the end of the Mesozoic, with the KT extinction, you see something huge. Now, this is, again, to try to draw out what we're looking at with the cones here, the way you see the images, each of these cones is representing one of these systems, the Paleozoic, the Mesozoic, and the Cenozoic in this case; but we could also make the divisions at other locations. Across the KT extinctions when you see the introduction of the system, this final cone growth here, gives you the appearance of the whole system, as you said, of the angiosperms, the fruiting plants, mammals, but then birds.

Now, as we've described in other things on the site, if you just had your little phosphorous glasses on, and you looked at birds, you'd see essentially packets of flying phosphorous. That if you look at this transition across this boundary, suddenly you'd see chunks of phosphorous, flying from continent to continent, and then, what we know as the sort of inconvenient by product of birds as they fly overhead, sometimes it'll land on shoulders, land on hats, land on cars, if you were look at those in your phosphorous glasses, you'd see packets of phosphorous—very important for fertilizer, very important for plant growth; you'd see that they'd actually fly, dropping phosphorous as a spread in the form of the bird guano, also bat guano. The phosphorous that is washed off of continents, into the oceans, is actually reabsorbed in the ocean life, and picked up by sea fowl, seabirds and brought back on land—that's one of the major ways this recycles back onto land, again, is by the fact that you got these birds, suddenly feeding in the ocean, flying back onto land, and dropping their excrement on land. But again, we're not seeing this as excrement, we're seeing this the cycling as phosphorous. You see a *huge* increase across this KT boundary.

Now, another demarcation we don't have here, but it's significant, and we'll show in another image, within the Cenozoic, take a look: Now, what happens to our vision of the cycling of phosphorous, once you get the introduction of human activity? Now, this is something—okay, we're going to leave out other aspects of human activity for a moment, and we're going to look at it just with our phosphorous glasses on. Now, think about what happens, when you see suddenly, the introduction of—you get the agricultural green revolution, the real green revolution, not this one; the actual revolution in agriculture, the development of nitrogen fertilizers and these things, where suddenly we learned, instead of just relying on digging up bat guano, bird guano, like we had before, in order to create our fertilizers, you suddenly now had the development of artificial fertilizers that are rich in nitrates, rich in phosphorous: You see the level of cycling multiplying. And this is a big complaint right now—a lot of the environmentalists are targetting specifically that, that you're seeing the increase in cycling of phosphorous. I think the figure is something like several times higher than it was with simply the introduction of birds.

But it's interesting, because if you take a look at human activity, you started to see this sort of patchy development, begin to erupt now, in a way, and again, you can follow that through each of these elements, and you take a look at the cycling, what you have in the whole system. And now, that's a big deal.

And in general, if you were to map that as a continuous curve, you'll see that in general, every time, with the introduction of human activity. Go back to the image you had here, **Figure 3**,

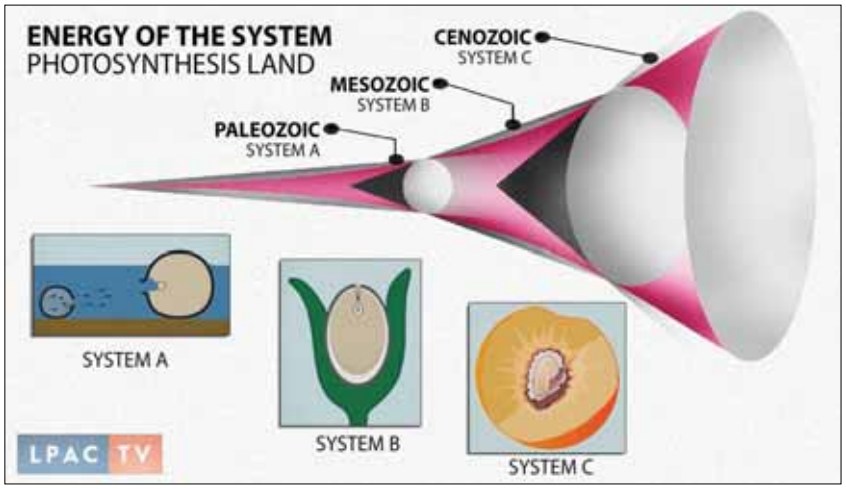


Figure 3

with the development of plant life across these major boundaries. So you take a look at your early ferns, which are capable, incredibly limited, compared to the gymnosperms. Gymnosperms will include things like your pine trees, your non-fruiting plants. Your ferns haven't yet developed pollen: pollen is a huge innovation over a water-borne sperm, which is what earlier plants used. Earlier plants had to actually released their sperm into water, so they had to be near water, in order to facilitate the reproduction among plant life.

Suddenly, you get a level of isolation, again, a number of these things we just register as nuisances, but the pollen, which for many of us becomes a nuisance at a certain time of year, is actually an innovation; it's your air-borne sperm, your ability to now pollinate across larger distances, but then, away from bodies of water. You've got the ability to encapsulate more of that entire system, so it's as though you're taking what you once needed, to have the river/fern system there, you're now encapsulating that into a single organism, that manages to move that now denser form of technology inland, spread that further.

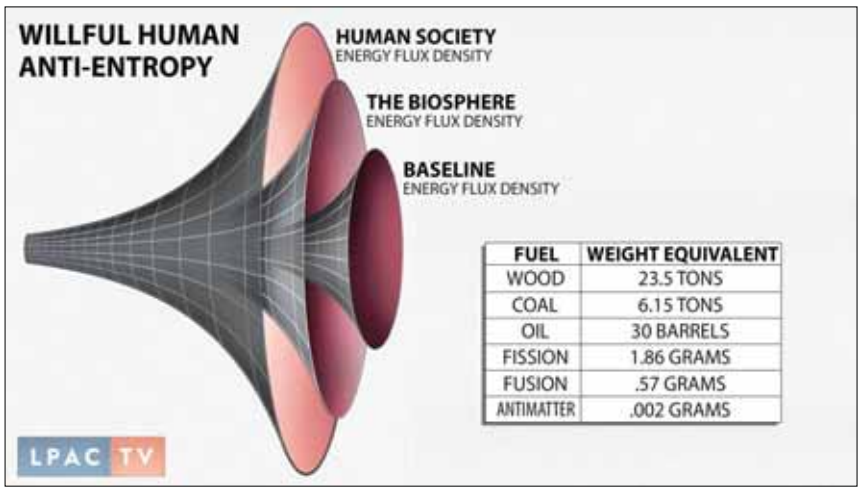


Figure 9

DENISTON: With the seed process specifically.

SHIELDS: Yes, with the seeds and then the pollination; the ability to have pollination, and then with seeds. With seeds you've suddenly got the ability to have something that can be carried long distances. As people know, you can store seeds and grain for incredible amounts of time: Now, that's a huge innovation. They can travel long distances. And once you get fruits, they're capable of traveling long distances inside of other animals. So, once you've got the fruit, the bird, the mammalian system, this is big deal: Some of us are personally familiar with the idea that we're very good at carrying things like tomato seeds, they somehow manage to survive our whole digestive process without much alteration.

But in general, a lot of these seeds, raspberries, tomatoes, other things you recognize, will survive being picked up by animals, carried long distances in their digestive tracts, and then dropped further inland, further from water, etc. You can see that, again, as levels of these encapsulation, of taking the entire system and embodying it.

Our friend, your friend, Krafft Ehricke, made the point that it's almost as though, if you really started to look at these elements, each of these singularities on land, behave as though you almost took the entire ocean and then they encapsulated it in a sort of—it's their version of a space station, or their version of a space suit: Where you take the entirety of your ocean, rap it up in a little, sort of a suit, and allow it now to walk onto land, as a self-contained ocean. So all these little systems that used to be separate organisms are now contained in one, and mobile!

So you can bring your ocean, now on land. Again, we've made the point in some recent videos, that's a *huge innovation*! This is *huge*, that suddenly, you no longer have the limitation of your jellyfish etc., that's only capable of surviving near the water, that you bring your water with you.

The same thing that happens for animals and plants: Suddenly, they develop the idea to have these stiffer stalks, where they can actually grow upward on land. This is a huge innovation. Whereas ocean life requires the buoyancy of the water to hold the plant up.

Now, from that arc, certain key elements in human development are almost necessary, certain things that we've done, and things we have yet to do, you can start to realize are absolutely necessary. One is the development of greenhouse and other techniques, the ability to take that whole system, and then, again, re-encompass that, again. So, yet again, just like earlier, you had this encompassing, we suddenly manage to take entire systems now, and govern them as a one, and enclose them. This is what permits us to grow food in difficult locations, in desert locations, and other things, where they wouldn't otherwise survive, we can have these controlled environments. It's what's going to permit us to colonize regions of the Earth, like the Arctic.

And again, this is a *natural* part of the development. You get all these *silly* idiots who claim "Oh, this is unnatural, this is artificial." In fact, this is no more artificial, than life moving onto land in the first place! That was quite artificial: That required some real artifice on the part of plants to decide they're going to move out of the oceans, and live in places where there's no ocean water. Imagine, the audacity to just bring your water with you! That you're going to have the audacity that you're going to take all this stuff and just carry it.

We're talking about the same thing, in the colonization of these Arctic regions. But ultimately, we're talking about the same thing in mankind's larger destiny in space as a whole, in the galaxy as a whole: That you're talking about carrying the entirety of the system, the real *mastery* of this entire system we have here on Earth, is, we found in our amplification of it, and then our ability to totally recreate it at a higher level of operation, outside of the confines of Earth itself. And we've only seen the very first stabs at this, with things like the Space Station. The real experiments with this, the real necessary mission is going to be in things like the establishment of permanent colonies on the Moon, and the establishment of permanent colonies on Mars.

The overall direction of this, is going to agree with the overall transformation in energy flux density we've seen in the biosphere as a whole. We'll take a look at this other image in the second folder here: We'll discuss comparing these two models. Now, you take a look at the earlier system you had of these subsequent cones. Each one of those systems, as it seems to collide with—you get the collision at each point with these prior systems.

The first model we saw in biospheric development, punctuated by mass extinctions. This has a certain texture to it: You have the growth and development of one system, that continues to grow, grow, grow, grow, grow—suddenly punctuated by a collapse, at which point it's intersected by a system that's meant to succeed it. The system that's meant to succeed it, always starts within the existing system. If you go back to the period of the dinosaurs, you see within the period of the dinosaurs, you would see running around, these little tiny, elements that would seem to be just extra at that time. You would see running around,

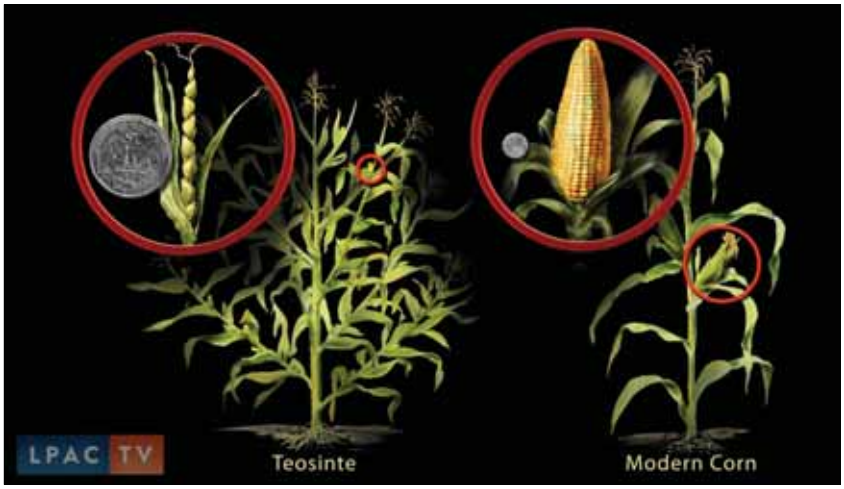


Figure 10

very small mammals, little rodent-like mammals running around; small, totally insignificant compared to the overall system of the dinosaurs. You see, repeatedly throughout this Mesozoic period, the appearance of feathers, and other traits connected to birds, which will appear, and then they'll vanish! And this is interesting, because they appear and vanish even without the actual bird being there, without the ability to fly appearing—the feathers will appear and then disappear, with no flight developed. It's almost as though they're appearing in anticipation of a system that's yet to be, where flight is an essential part of that system. So you're seeing, you could almost say, the research and development for that later system, during the prior system. And it's built up, as if it's designed to take over at a collapse point.

Now, as we discussed, you *do* see this in elements of human behavior, but it's one type of human behavior that has that same characteristic, and this is the psychology of empire, always has that characteristic. If you look at the development of human societies, human empires, you'll see the same sort of thing. And again, we'll discuss it in detail later, but one that I like, is, look at the development of Christianity within the Roman Empire. Within the Roman Empire, you've got this thing that's destined towards collapse, but destined for collapse, and even at its earlier point—it doesn't take a wrong turn and suddenly end up collapsing; by its nature as an empire, it's destined for collapse, just like the dinosaurs, the end of the dinosaurs is not because the dinosaurs did something wrong. It wasn't as though the dinosaurs were doing something "good" to begin with, and then, failed at the end. They kept being dinosaurs, they made no fundamental change in their behavior: They continued doing what they were intended to do.

At the same time, empire, in the course of doing just what it's intended to do, will drive itself to collapse. That's inevitable, that's part of the fact of its lack of development. But within it. you see the development of these weak forces that actually will represent the next creative shift. And you'll see those developing as a ferment. So you'll see the development of republicanism within feudalism; you'll see these willful acts of human creativity, that will often be reduced to single individuals within the system, but then, they're destined to be the explosion that takes over as the next step, because of what they represent principally.

But with human individuals, you have the potential to not have to wait for those collapses, you've got the potential not to depend on these extinction events, but instead to say, that you can initiate those developments continuously along that arc of development. So, this gives us an image here, of taking a look at what would like, you get the hyperbolic growth, that the other growth seemed to be approximating. **[Figure 9]**

Now, that's an effect, not simply on just human society, that shows up in a number of different ways, but take a look at what happens to the biosphere, during the period that human beings are available, are around. We saw already the introduction of fruits, across that KT boundary. Now, we had a picture of a nice juicy peach, but it's very important to see that the fruits that were actually introduced, are not the fruits you would recognize today. We'll take a look at this—we're familiar with, and we've had a video on the site covering this, but we'll give a quick summary, we're familiar with corn as a staple of many diets around the world. **[Figure 10]**

The corn we know today is not the corn that was produced by the biosphere. The corn that was produced by the biosphere, few people alive right now, would recognize as corn. It's this little woody thing, called Teosinte, where you can't tell, it looks like just a little stalk of straw or something like that. What it is about 10, 12 of those corn kernels, each one encased in a hard shell, so each one individuals is a hard shell you'd crack, inside of it, you'd find some kind of a meat. They grow all over these little bushy plants, you get these things which are mostly stalk, mostly bush, they grow all over, little, hard shell: *very little available nutrients* in that process, that require lots of work to be able to turn to something usable.

Human activity acting on that corn over the course of human development, transformed it from this little woody thing, to this sort of still modest by our modern standards, but a huge breakthrough in terms of nutrition, a tiny little pseudo-corn element here, where you've at least got the fruit is available. To again, cultivation, cultivation, conscious willful development, into this thing, which is, again, what we recognize, first, large, nutritious; now, the majority of the plant, if you compare how much of your actual corn stalk is fruit, to how much was fruit in the Teosinte, the overall energy-density, of available energy-density has increased, as you increase the ratio of fruit to stalk, what you're increasing here is the available energy-density of the biosphere as a whole.

Now, this is one example. You could do the same thing for corn, tomatoes, bananas, apples. Take a look at any of the original wild version of these, they all look like berries. Often berries with hard shells; we transformed them into something which—we've increased the overall throughput of the biosphere. You can do the same thing, when you look at things like land-area usage. If you look at how much fruit per land-area was possible with Teosinte, compared to what's possible with corn: Huge transformation! Huge shift!

Same thing with domestic animals. Take a look at the transformation of cows, pigs, etc. Some of us recently had the experience of eating wild deer, and you know there's a very distinct problem with the fat to muscle to bone ratio, in the wild animals, versus a good domesticated cow, like we've also got around ourselves here. That the overall energy-density of the cow itself has increased on the basis of human activity. And you pointed out the biosphere was tending in that direction earlier, if you take a look at your shift in different type seafood. The amount of meat that's contained in our mollusks is way above what you had in the brachiopods.

So, with that overall development, that is mirrored by—

DENISTON: And that how to set your baseline. That's just what the system's doing.

SHIELDS: Exactly. Right, which now it's a consciously driven baseline. You're consciously—

DENISTON: The only way you saw the shifts with the evolution of life, was by an actual physiological change, there had to be

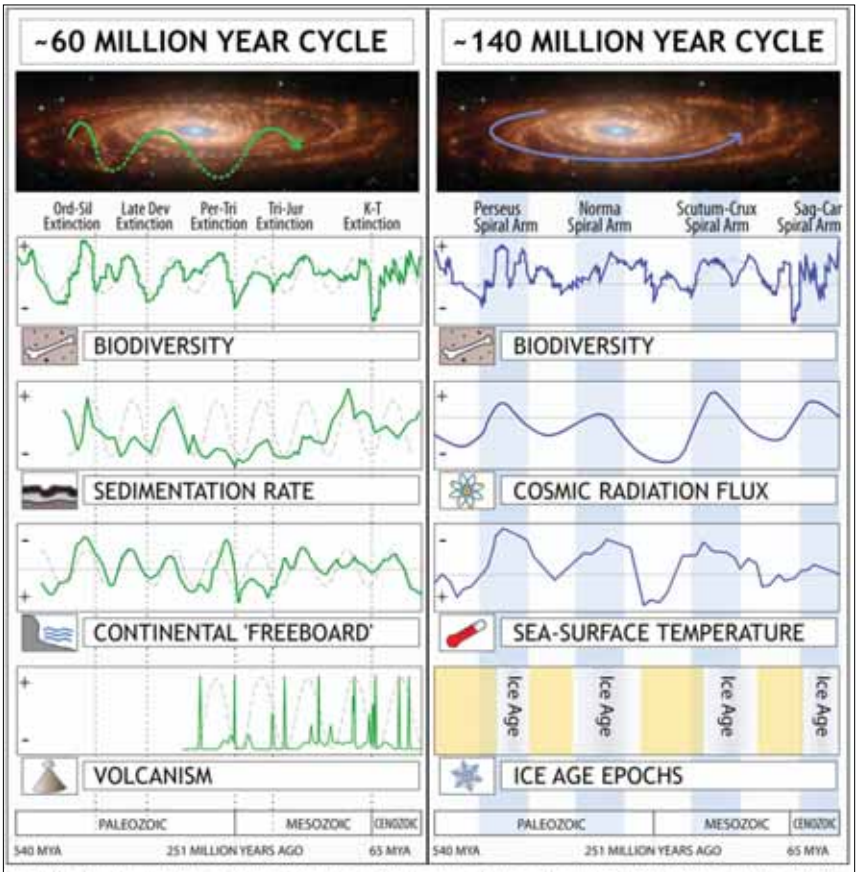
a physiological change in the structure of the living organism, to correspond to this total upshift of the system. With mankind, not only do you see it at an incredibly faster rate, but you're saying it's purely a power of the human mind, to actually create these new states, create these changes.

SHIELDS: Consciously, consciously. And it's a continuous process. It doesn't have to be punctuated by collapse. But it can be punctuated by collapse. At any time, as you said earlier, at any time that we shift to the animal model, that biospheric model, you're guaranteeing—

DENISTON: Mm-hmm, the imperial model.

SHIELDS: The imperial model, which is *exactly* that! Explicitly that, from the Greens! Explicitly that! From Gingrich, from the so-called Conservative Revolution types, explicitly that. From the Liberals who are endorsing the Greens, *explicitly* that! Explicitly a return to an animal model of evolution, that is by necessity, punctuated by major collapses of systems, from which you're not guaranteed to recover. From which you can only recover, by building back on that earlier line that they denied.

But humans have the *potential* to have this sort of continuous development. What you referred to in papers, as "the potential to be an immortal species," that exists. We've seen it expressed here in the shift to the different types of reliance, what is your baseline energy usage as far as power production? So, we were discussing here, if you compare the orders of magnitude of energy that you can get from wood-burning, to coal-burning, to coke, to thermonuclear fusion, to thermonuclear fusion, to matter-antimatter reactions: Each time, you got increase in orders of magnitude, not just multiples of power, but actual orders of magnitude of power of increase. Which, each one of those which can happen within the lifetime of a single human individual, each other of those is on the order of magnitude of the kind of shift we saw earlier in the biosphere, only when you have a *total shift* in the whole system. You know, that kind of transformation, will never cover the lifetime of a single organism. No animal can encompass that kind of a shift; they life within in, they're governed by it, but *human activity* governs that shift. We encompass it, we actually drive that. And there is no reason that within the lifetime of a single human individual, you couldn't see, three, four, five, any number of those shifts, based on the actual willful human creativity, and the ability of human society to transform itself.



Graphical representation of the two theorized orbital cycles of our solar system through our galaxy, and the corresponding cycles in biodiversity and geophysical/climate activity. See: "Cycles in fossil diversity," R. Rohde & R. Muller, Nature, Vol 434, March 10, 2005; "A Ubiquitous ~62 Myr Periodic Function Superimposed on General Trends in Fossil Biodiversity: Part II," A. Melott and R. Bambach, 2009, arXiv.org preprint; "Cosmoclimatology: A New Theory Emerges," H. Svensmark, A&G, Feb. 2007, Vol 48; "Cosmic Ray Dinsion from the Galactic Spiral Arms, Iron Meteorites, and a possible climatic connection?" N. Shaviv, Physical Review Letters, vol. 89, Issue 5; "Environmental Determinants of Extinction Selectivity in the Fossil Record," S. Peters, Nature, July 31, 2008, Vol 454; "Time-Series Analysis of Large Igneous Provinces: 3500 Ma to Present," A. Prokoph et. al., The Journal of Geology, Vol. 112, No. 1 (Jan., 2004), pp. 1-22.

Figure 11

And so, we'll be launching a few more studies applying this to key economic policy directions. We've applied it recently to the discussion of Arctic development; we'll be applying it more in detail. We're going to be applying it more explicitly to the Extraterrestrial Imperative. But quickly, just to end, I'd like to take a look at something, that we only hinted at. Which is that, when you take a look at the overall development of the biosphere, here, and you see these, again, these punctuated collapses, you see an arc, that sort of slightly, that tends to approximate what should be the human development also, you see this hyperbolic art, something is underlying that process, that's driving it, that's not to be found within any element of that process itself. As you said, that you can find all sorts of efficient cause relationships between the elements: You won't find the full cause of the process within any of those elements. Certainly not the fact that, and this is really reflected in the fact of what seems to be the time reversal: The anticipation in time of a state that's yet to be, of a state that's necessary.

Now, we've covered on the site, before, the fact that you see those punctuated, those extinction events, in the biosphere are connected to these. We can take a look at the galactic cycles image here, are connected to phenomena, but on a much, much larger scale. Now, this is on the scale of the galaxy as a whole, you start to see the exact, same cyclical behavior, to the extent that it's a cycle, that you find punctuated and expressed in the form of our galactic motion. **[Figure 11]**

Now, we've had this covered in more detail, so I won't spend a long time on it here, but just to give you an idea of where you're seeing the echo of the larger causality, then also where you see man has to go, and man's own activity in order to become the actual controller of that process. For man to actually take control of mankind's own destiny, truly take control of mankind's own destiny, it requires an expansion to this scale of activity, this scale of conscious activity. No longer just governed by this, by consciously acting on this level.

This is what we're talking about with policy, and this has to be—that cone, of development begins *here*, and branches out! That level of development has to govern policymaking *now*. This is not something you can wait for, or you can get up, allow things to develop up to that, that's the government policy now. And we can discuss it. That requires some very key steps, that must be taken, here, in the present.

And again, once you look at this entire process, the steps are explicitly defined, they're not matters of opinion, they're not things you could "choose" to do, they're not matters of "political inclination." It's not what do you agree with politically here or there. These are the steps that are necessary to maintain our survival, and they express themselves as policy. They express themselves in your vote, in what you do in the ballot box, what you do with your day to day activity: They're expressed there. They're *not* matters of your own individual opinion.