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The Extinction of Empire

Following is the transcript of Part 1 of the 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. For more detail on the concepts discussed, see www.larouchepac.com/planetarydefense.

SKY SHIELDS: Okay. So we'll do a picture, we've got a chance right now, we want to tackle, as you said, a question of core economic scientific principle. We're going to take a look at—this is an image that I think people will find on our website currently, which is meant to operate as a heuristic device for some of the key principles which you've been addressing in your recent papers. Now, what we'll discuss here, will be a very specific case study, actually a set of case studies. It won't be a substitute for a full breadth of everything you've laid out, but I think it'll give a good guide to the meat, to the core of the matter.

What we're going to look at, we're going to address a couple of things: One is, what's come up a lot recently, which is the texture of economic time; but then, we're get at what the ontology of this is. What exactly is the ontology of these key developmental processes, that are shared in common between overall human development, economic development, and the creative anti-entropic development of the universe as a whole.

Now, we'll draw some key distinctions at the end, between the biospheric processes and then human processes, but first we're going to take a look at certain characteristics that are in common, because these are going to be characteristics that will be characteristics of anti-entropic development, of evolutionary development as a whole, that are actually inviolable, in contrast to the standard description of what evolutionary development is. And we'll see that the processes we'll look at here, both within the biosphere, and within human economies, are going to be completely opposed to everything laid out by the Darwinian program of natural selection, everything laid out by Adam Smith for economic policy, but then, on a more fundamental level of ontology, it'll be entirely opposed to whole program put together by Pierre-Simon Laplace.

So, we'll take a look here, in taking a look, in examining the development of life in the biosphere, we see that it's punctuated by certain key events. The overall trend is a certain development that we know culminates with where we now find ourselves now, with human beings playing a very specific role within the biosphere, and within the universe as a whole. But along that route, you see certain key steps of development that have to be reached, to get us to where we are. Now, that overall upward development, anti-entropic development, is punctuated by events that are typically referred to as mass extinction events, and the two we're going to take a look at today, to focus in on, even though these aren't the only two, as known as the KT mass extinction, and the PT mass extinction: The Cretaceous Tertiary is the "KT," and the "Permian Triassic" is the PT. **[Figure 1]**

Now, hopefully, by the time we're done here, it'll be clear that what's most significant about these events is not that they are extinction events. In fact, we might see that that's going to be an improper use of term. These are actually certain key qualitative types of transition, which are marked as much by the creation of new species as by the elimination of species. And in fact, we'll see that the reason for the elimination of these species, is that overall process of creation, what governs the need for the disappearance of certain systems on the planet, is what's required for the for the production of the new, subsequent system.

So we'll take a look, just so people have an idea, the KT extinction event is what people have in their minds already, in the popular culture as the extinction of the dinosaurs. **[Figure 1]** People know this as, this is when the dinosaurs vanished. Most people don't really take into account that this is also when you get the creation of what we recognize as our modern system. Certain key elements that we take for granted in our modern system, emerged post that boundary: the development of mammalian life, the rise of the birds, the rise of flowering plants, fruiting plants, all the things we recognize, as you said, the birds, the bees, the mammals, the fruits and the nuts, these all emerged immediately after the KT.

Now, the question is, well, what is the texture of anti-entropic development and anti-entropic timing governs that process. And we'll see that it's a reflection of one very key economic principle, which is the increase in energy flux density. We can take that continuous process, as something we want to carry over now, to policymaking in the present to get us out of the current crisis. This discussion is going to be the discussion that we're going to want to bring, right now, into the economics departments, that you're going to want to make dominant in the planet, because we're witnessing the failure—currently, globally—you're witnessing the failure of everything that's been proposed as economics, over the last several decades. And anybody right now, I think you've got people who are realizing that they've been sold, you would say, a "lemon," with what's been promised to them as economic education and scientific education. And we're in a position right now, where we really do need a Renaissance, we need a revival of this earlier approach and a reapplication of it, if we're even going to survive.

So, just to begin with, I'll pass it off to you, Ben, to begin to take a look at the what characterizes this distinction across these

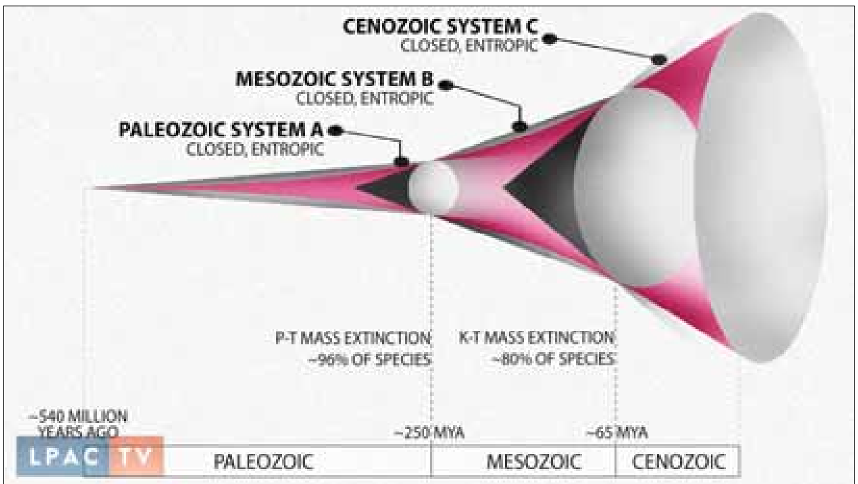

Figure 1

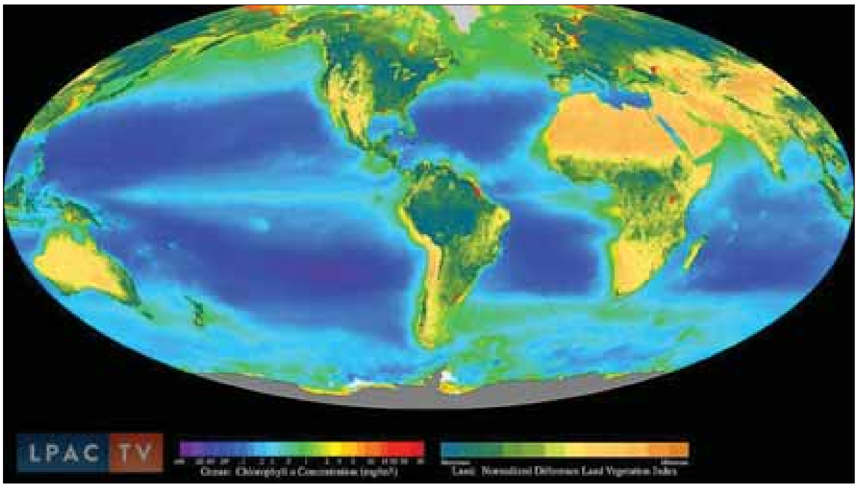

Figure 2

two major boundaries.

BEN DENISTON: And the key thing, in approaching this is, like you said, to get away from this Laplacean causality, into the actual principle of what's the real cause of the substance of this development process. And the fist step is to just immediately state outright that you're looking at the development of the biosphere system as a whole, looking at the question is what's actually governing that process, like you're saying.

And so, in taking this half-billion years, the last 540 million years about the development of complex life, something we have a decent record of in the fossils. These two mass extinctions really stand out as clear inflection points in the development of that whole system, as a single system. And to put the first point out, to get into it, the first principle you see throughout this whole process is that the energy of the entire system is constantly increasing. But it's not just a gradual growth process, you get these stark inflection points removed to a new state of the system. And like you've discussed in previous presentations here, and in locations on the website, the way this occurs in the biosphere, is you'll have the beginning of the introduction of a new system within the prior system. And you have the beginning of it, and then at a certain point you have the actual takeover of this new system taking over the first system.

And so, we have that illustrated in this series of nested cones, expressed in this process. Now, what you have, first, for the biosphere, just to make it clear, to become familiar with it, really, your baseline total energy of the system—and we'll get into some more qualitative metrics shortly, but the baseline, the energy of the whole system, is defined by your photosynthetic activity. That's the way life, organic matter can actually take energy from the Sun, sunlight, and actually transform it into something into something that life can use. So that becomes, kind of, your bottom line of everything. You know, everything that goes on with life is ultimately depended upon this photosynthesis process.

And so, if you look at a global map, you can see, NASA's put these out, as have different agencies, you can see the distribution of where photosynthetic activity actually occurs in the planet. **[Figure 2]** And you'll see, even today, there are huge regions were there's hardly any activity at all. You have great deserts. We're familiar with the Great American Desert, which is something NAWAPA would address, in actually upshifting and developing. You have the major Sahara Desert in Africa. And also, if you see in the oceans, you have huge desert regions in the oceans.

So there's already limited areas where you even have life active, productive, and actually creating new biological matter, the baseline of the whole biosphere system.

SHIELDS: And that's significant, drawing out, I mean people don't recognize the open ocean is largely, with respect to this process, photosynthesis, the development of life as a whole, that these do function as desert regions.

DENISTON: Mm-hmm, yes, exactly. It's desert. And there's certain life, maybe deep down, in certain vents and different things, but for the vast majority for most of the life is in the regions indicated here.

But what you see, is this process has gone through a clear qualitative upshifts, both on land and in the ocean, corresponding to these phase-shifts of the biosphere system. Just to highlight some of the key developments, you had, the first roughly 300 million years of this process, in what's called the Paleozoic era, the dominant form of plant life on land, emerged on land partly through this process, but the dominant form of plant life on land that characterized the latter part of this period was more the fern-based life, which was characterized by needing to be near water to reproduce; it had spores, it didn't have standard seeds like you see today. So, even the plant life that could be on land was limited very much to these coastal regions. **[Figure 3]**

Then you had a huge breakthrough around the PT mass extinction, like you're saying: It was a mass extinction. It was devastating: you have 96% of species eliminated from the planet, roughly. But what came out of it was the development in this photosynthetic base with a totally new quality of plant life, with the gymnosperms. So now, you have the seed-based life, and what that enabled was life was able to penetrate much deeper into the inland of the continents, than it could otherwise. It would actually move into drier areas, it didn't require to be immediately in a wet or moist environment to reproduce, which was the case with the previous system.

And then you saw a further upshift in the plant life on land, with the KT mass extinction; we had the development of the angiosperms. And we'll get a little bit more into the significance of that also. But then you had a further spreading of life.

But then, what gets interesting is that—this is where you really have to get away from the bad pair-wise causality that dominates everything. Because you're looking at the whole system is driving towards this upshift, because you see this exact same upshift, not just on land but you see it in the oceans as well. And

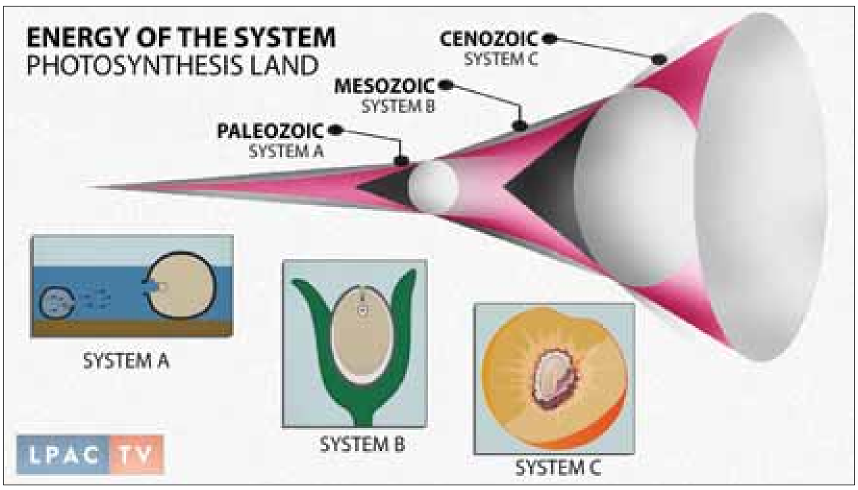

Figure 3

for photosynthesis in the oceans, the majority of it's done actually by what are called "phytoplankton"—little single-celled critters. They actually produce the vast majority of photosynthetic activity, the creation of new living matter in the oceans is by these little single-celled guys. And you see the exact same set of three qualitative shifts, that you see with plant life on land, you with plant life on the oceans, too. **[Figure 4]** Around the PT mass extinction 250 million years ago, you have a qualitative shift in the type of photosynthetic life in the oceans, and with this, you have photosynthetic life spreading further, deeper into the oceans, overall more production, more creation of new biological matter.

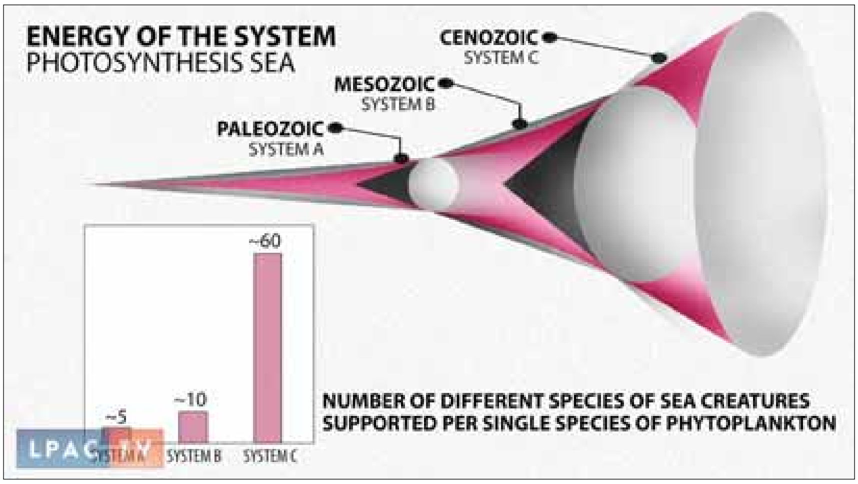

Figure 4

Then you get a similar shift with the KT mass extinction. And one way to indicate this, for example—there's a lot of ways to get a sense of how the whole, total energy of the system is increased, but for example, one metric that comes up is you can look at, between these three systems, you can compare how many species of higher life are supported per single species of photosynthetic life in the oceans. And so you see this steady increase from about 5 species, to 10 species, to 60 species, going from system to system. So, you're seeing that, with this increase of the photosynthetic base, you get an increase of support of higher, and, as we'll see, more complex and more advanced, whole system of life based on this advance in the photosynthetic base in the energy of the system.

But this is not just simply a linear increase. It's actually expresses, like you opened up with, it gets you closer to this question of energy flux density of the system, to actually get more of the principle of what's governing this developing upshifting process, what's actually governing this anti-entropic process as we see it. And you can see that expressed, as you have the shifts. So, the whole energy of the system is increasing, and you made the point earlier that this idea would also become in any discussion of real, healthy economic process; but the whole energy of the system is constantly increasing, going through these upshifts. You're also getting a constant increase in the consumption. The energy consumption per capita, and here per species, is constantly increasing with these processes.

SHIELDS: Right. We should underscore that. This'll become clear as we take it into the economic discussion, but this is the exact opposite of everything that's ever argued by the environmentalists. It's the opposite of what's argued by the all these so-called household economics, free-trade economics, like Gingrich and these people, who say that you find your profit margin in cutting back and reducing consumption. This is never the case, anywhere in the history of the biosphere. The actual source of the development, is the increase of consumption, but being able to balance out in the processes that you're describing here, you balance it out by the quality of upshift that you launch.

DENISTON: Right. And as we'll come to, doing the opposite is the way to absolutely guarantee extinction. As we'll see in these cases here: To not go with this process, to try to limit yourself to any fixed state in the system, that's the definition of guaranteeing extinction. Because there's no fixed point in this process, the whole process is moving forward. And we'll get to a couple of cases of that shortly, but, another clear expression of these upshift in these systems, you can see just in the question of the metabolic rate, the metabolism of different species. **[Figure 5]**

And a fun way to pose it, is you could actually take the different flesh of different creatures, like 1 gram of flesh of a mouse, versus a lizard, versus a salamander, for example. The actual amount of constant intake of food, and water, and oxygen and respiration required to sustain that same 1 gram of flesh, is completely, qualitatively different for each of different types of species.

And that's where you see, these creatures we have, these are kind of reflections of the type of species you had in the previous eras. Right? You obviously have the introduction of mammals, as becoming the dominant system following the KP mass extinction; the reptiles dominated following the PT mass extinction. But what you see is that the metabolic rates shifting, increasing through this process is a very clear expression of the clear characteristic of the constant increase of energy consumption, per species. But then, really, it is a pretty direct expression, this question of the energy flux density, the actual flux, through respiration, eating, again everything that's required to sustain the organisms, is required to be at a faster rate, with these upshifts in these systems.

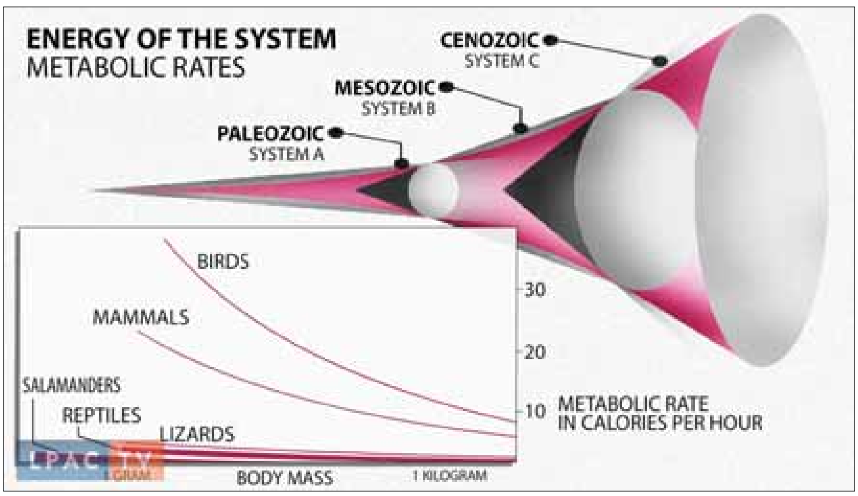

Figure 5

And what you can see is that, here we have just one example, and this is just one illustration of the principle of the process: What you see with these upshifts then, is that these mass extinctions, what they really signify is that, then the species that don't upshift with the system, that are fixed to the lower-level system, the previous order, are the ones that go extinct. I mean, this is a fun, single example, but I think it reflects a lot, which is this case of the comparison of these brachiopods versus these bivalve mollusks. **[Figure 6]**

DENISTON: Yeah, right. And the mollusks are the ones you have, your clams, oysters, everything we're familiar with today. There was very similar creature

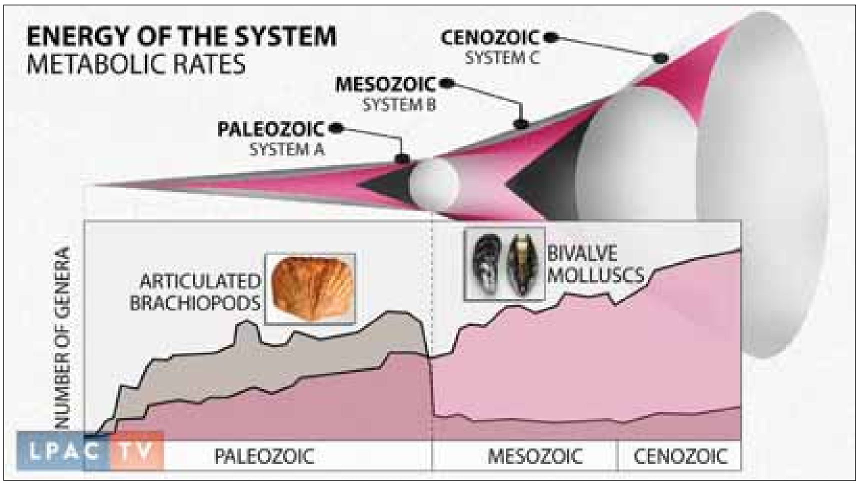

Figure 6

that dominated the whole Paleozoic era, called these brachiopods: similar two-shelled creature, lived in similar locations, ate similar food, had similar predators, they occupied a similar place in the relative system. But as you see at the PT mass extinction, the brachiopods were devastated, they were wiped out. The mollusks were hardly affected. They were affected, but nowhere near as bad as the brachiopods. And the mollusks, then, took over and became the dominant species.

Well, the mollusks have a metabolic roughly on the order of ten times, that of the brachiopods. So, it's very clear. It's one case, but you see it also with dinosaurs, comparing the dinosaurs to the mammals. You see, it's the whole system is moving toward, like you're saying, a constant requirement for further energy consumption per species, and that characterizes the system. And this is, again, across the board, we're kind of pulling out slices here, but one fun thing we came across, also even the development of fungi shows this, of all things. **[Figure 7]** That actually, in the whole Paleozoic period, you actually had very primitive fungi that couldn't break down tree matter and different living plant matter very well; and it only came in following these successive shifts of the system. But then, what's the significance of that? That was a great increase in actual, so-called "carbon cycle," and the so-called "oxygen cycle," because now you have this increased fungal form that could then actually break down the material at a faster rate, and increase the follow of the exchange of carbon from living to nonliving and back into living again, same with the oxygen. So, you just see, across the board, we're just pulling out a couple, illustrative examples here.

SHIELDS: And that's going to be a theme that's going to keep coming up, that speed of the cycling, that things will actually increase the speed of it.

DENISTON: Yeah, exactly.

SHIELDS: That's something that it's an innovation to be able to speed up decay, is an innovation. Because you see, again, this is where the language sort of trips us up, because people think of decay as a collapse. In this case, it's not: It's speeding up the ability to do what Vladimir Vernadsky referred to as the "biogenic migration of atoms." **[Figure 8]** Which we'll get into: If you view these elements as these individual creatures as singularities, what you're speeding up is the amount of flow of the whole system through these things that are just singular elements.

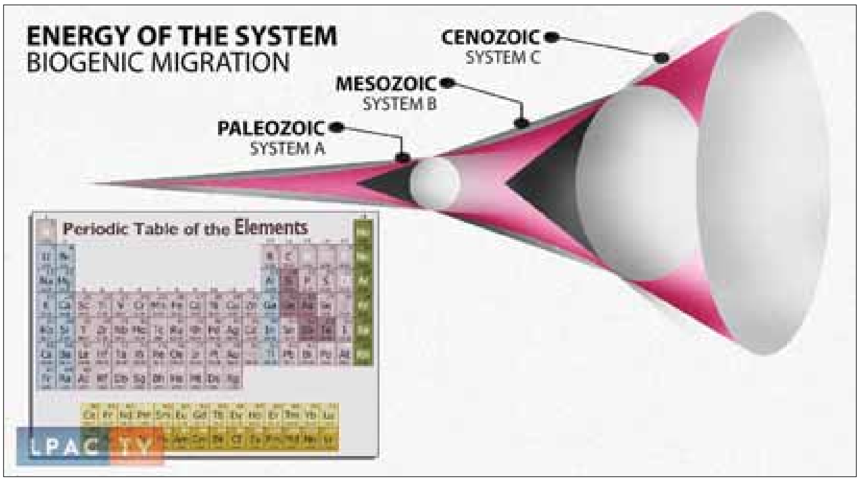

Figure 8

DENISTON: Mm-hmm, yeah. You get an increased rate at which life itself transforms the face of the planet: Transforms the atmosphere, it transforms the soils, transforms the oceans: That throughout this process, life's expanded, it's taken up more of the Earth to transform, to take in and change the characteristics of it, and it's done, like you say, at a faster rate, a constantly faster rate.

And I think the point is that, this whole environmentalist doctrine, or, like you're saying, everything that governs economics today, then has to be seen from this standpoint. And it becomes more and more necessary to get this issue, this becomes a practical issue at the point of this deep of a crisis right now. Because the crisis reflects that we've gone {*so*} far, the reason why the crisis is so bad, is because we've gone so far from a system that actually is principled. That actually corresponds to what we know about the way the universe actually works.

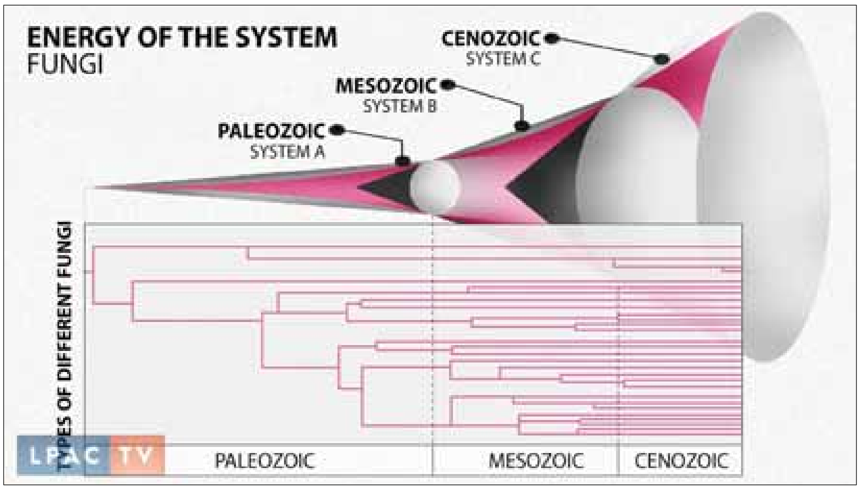

Figure 7

And so, it necessitates that we actually get more to the fundamentals of what is mankind actually facing now, as a crisis, to actually determine what kind of policies we need to get out of this crisis. And it can never happen if we just try and repair the system we have now. It's going to require—I mean, we can do a lot more, we have plans to do more studies of this, looking at this type of staged development process in human economics throughout the history of human society.

And looking also at cases, like we were discussing earlier, the Roman Empire, where you have a case where if a society that doesn't make that leap, then it's destined to collapse, destined to a dark age. So you get both sides of it.

But anyway, this needs to become the baseline for discussing what type of policy we need immediately, that's going to be the only policy that's actually going to work, to move us out of this crisis. So, I think you wanted to get into it a little bit more.