**The Future of the ‘Spiral Paradigm’ in Climate Action and Life on Land**

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**Abstract**

Climate change is a vortical situation of increasing turbulent conditions called ‘sixth extinction.’ In this chapter I begin with the two-dimensional Archimedean spiral (the coiling rope), move on to the three-dimensional corkscrew spiral (or threaded screw), and on to the three-dimensional double spiral of upward and descending movement with many nested vortices. The later is more necessary to understand climate change, and our possible future in it, than the flat spirals. Ironically, Plato wrote about the double twisted spiral with its nested vortices long ago. We are in a double spiralic helice, a vortical phenomenon with centripetal and centrifugal, upward-ascending and downward-descending waves, and left and right turning whorls. It is worse than this. We need to challenge spiral symmetry thinking. There is no reality axis around which the spiralic helice is spinning, and there is no symmetry. There is no uniformity to the spiralic vortices of turbulence of the sixth extinction.

**Key words:** Spirals, vortex, turbulence, centripetal, centrifugal, helical, climate change

**Introduction**

Can we develop an upward de-extinction spiral to conserve some modicum of biodiversity of life on earth? We are already well on our way into the downward spiral of our own oblivion, known to all, as climate change and 6th extinction. Unless you are into the narrative of climate denial, you understand the counternarrative: how our fossil-fueled industrial revolution morphed into planned obsolescence of Carboniferous Capitalism that management and organization folks have been orchestrating since the days of General Motors, and their guru, Alfred P. Sloan. Before peak oil, peak gas, peak coal, peak water, and let’s just call it ‘peak everything’ (Heinberg, 2010) brings about 6th extinction results, perhaps we can develop an uprising de-extinction spiral counternarrative.

Life on earth has survived five mass extinction die-off events, and rebounded. “Well lose more mammals in the next 50 years, and it’ll take 3 to 5 million years to once again rich today’s biodiversity levels” (National Geographic, 2018)[[1]](#footnote-1). For example the endangered indri evolved separately from other lemurs for 19 million years and will lose its evolutionary heritage and become extinct within 50 years. The result is the our grandchildren will be deprived of millions of years of unbroken history.

Some 322 birds, mammals and reptiles have all gone extinct in the last 500 years, with two thirds lost in last two centuries.[[2]](#footnote-2) By decreasing the per capita human consumption footprint on the planet, and by implementing non-fossil fuel technologies to produce food and goods, we can save some of the expected loss of life on earth. This will require a major paradigm change. We can no longer view animal ecosystems as irrelevant to human life on earth. On a global scale, keeping life on earth ‘healthy, happy, and terrific’ (a saying we have in my course will necessitate a global scale change in our lifestyles. Our human health requires our respect of other life on earth. Our happiness depends upon ecosystem stability, which means taking care of wild life species (the indri, tapir, bald eagle, the California condor, Tasmanian tiger, dodo, ground sloth, Irish elk, and Pyrenean ibex), removing invasive species, and like Jurassic Park, brining the already extinct species back to life. The tapir, was among the first large mammal species to disappear in human-modified ecosystems. The Tasmanian tiger became extinct in 1936. The problem is humans have become the invasive species, and life on earth was less able to adapt to our Carboniferous capitalism lifestyle. The loss of habitat, the exploitation of birds and mammals for their meat, has brought about a loss of biodiversity. The Pyrenean ibex (a horned mama) roamed freely in Europe, and went extinct in 1990s. It has been selected by scientists for de-extinction by extracting their DNA from frozen remains, and cloning them back into existence.

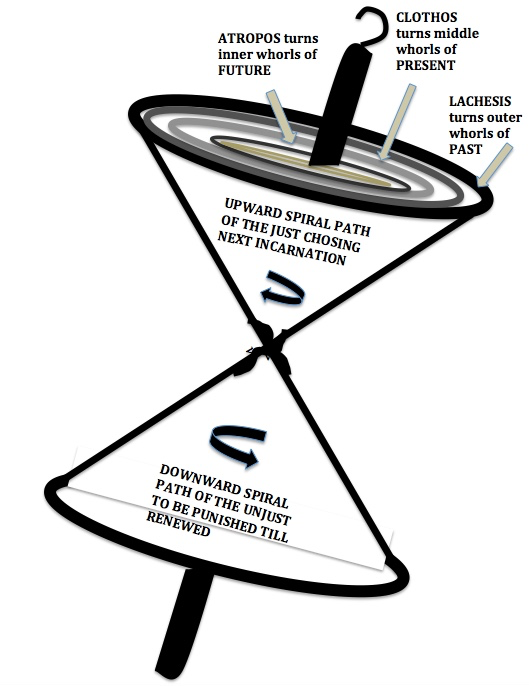
In this chapter, I explore, how do we change our life style under conditions of Carboniferous Capitalism, in order to create de-extinction of life on earth. I also want to give you my predictions about the future of spiral theory, methods, and practices. There is an emerging field of spiral praxis. Praxis means theory plus method in practice. So here I mean to elaborate a new ‘spiral praxis’, complete with spiral-theory, spiral-method, and spiral-practices that could help some of us, and a few of some other species, faced with extinction, to survive. It would mean embracing a very different approach to managing and organizing.

Let’s start easy. Two-dimensional spiral theory, method, and practice is not that useful to understanding climate change. Archimedean two-dimensional spiral theory is a single line that coils one point repeatedly around another point. Think of a coil of rope and the pattern it makes. We can move on to three-dimensional spirals, such as a roll of carpet or parchment around a post. It’s still not that helpful to understanding climate change and sixth extinction. That is because climate change is occurring in vortices unleashed in variable chaotic weather. Its not just that the climate is getting warmer by 1.5 and hopefully does not exceed a two degree change. Rather, the problem is the predictable cycles of weather, season-to-season, and year-to-year, have turned volatile, and turbulent. It is hard to farm in the drought and downpour climate of unpredictable weather cycles.

Defining terms will help you as we develop some spiral theories that are appropriate to the complexity of climate change. Here are some simple examples of different spirals

* Archimedean Spiral is defined as two-dimensional form: “a continuous curve trace by a point moving round a fixed point in the same plane while steadily increasing (or diminishing) its distance from this” (Minahen, 1992: 149). Example: coil of rope.
* Single Spiral Helix is defined as three-dimensional spiral form that turns about a center axis in progressive circular spins, but unlike Archimedean spiral does not get progressively wider with each whorl (Minahen, 1992: 153-4). Example: a snake wrapping around a pole, a bolt thread.
* Double Spiral Helix is three-dimensional, helical form. Example: two snakes wrapped around each other, or the double helix DNA spiral.
* Double Spiral Helix Centripetal-Centrifugal is three-dimensional, but there is helical spiral expansion and contraction around an axis. Centripetal moves to the center from the periphery. Centrifugal forces move from inside to outside. This is also called the gyre, which has centripetal and centrifugal spiral helical turbulent forces (Minahen, 1992: 156-7). Example: screw thread, whirlpool whorls.
* Spiral Vortex (Tourbillon) is defined as three-dimensional fluid or wind swept particles rotating in spiralic movement of high velocity around an imaginary axis, and moving with randomly distributed motions across a landscape with rapid displacement of its particles, bodies, animals, humans, etc. Example: tornado, whirlwind, typhoon, waterspout, cyclone, dust devil, sand sprout, hurricane, black hole, etc.
* Asymmetrical Spiral Vortices lack the axis of symmetry, and the forms are not symmetric left ot right, top to bottom, or back to front. Asymmetrical spiral vortices twist in various directions encircling without a center. Example: real life.

Climate change will likely be n-dimensional instead or two- or three-dimensional. There will likely be spiral offshoots, and quantum jumps between the whorls of spiral vortices are a possibility. Rather than being symmetrical, the climate change spirals will likely be asymmetrical. Plato, for example, has a symmetrical understanding of his poetic, double-twisted spiral, with an upper and lower cone, each with eight nested whorls. His double twisted spiral turns around an imaginary weaver’s spindle. Three mythical women turn the whorls. Atropos turns the inner whorls of the future. Clothos turns the middle whorls of the present. Lachesis turns the outer whorls of the past. The three sisters of fate weave our storyline.



**Figure 1: Twisted Double Spirals of nested Whorls** (Drawing original by Boje)

We need something a bit less symmetrical to understand climate change. We have past peak oil, gas, and coal. We did pass peak water in many parts of the world. The have past peak wealth, since just eight billionaires have amassed control of half the wealth of the planet. We are about to eat our way past peak food. In short we have arrived at ‘peak everything’ (Heinberg, 2010). In peak everything we already grapped the low hanging energy fruit, and on the downside of the peak, it is more difficult and far more costly to reach Earth’s remaining natural resources. The United Nations 17 sustainable development goals (SDGs) want to curtail all this, and more (gender inequality, poverty, etc.) by 2030. I believe in the goals and teach them in my last semester of classes, before retiring from New Mexico State University. Let’s get real, a look at the measures leads me to believe, a lot of wealthy nations are measuring the developing nation’s plight without taking much responsibility for centuries of colonial exploitation. Rather than the US engaging in ethical answerability, there is rampant climate denial in the political order, which will surely delay the biggest energy hog, from getting control of its run-away greed, gluttony, and growthmania. We have rising demand for natural resources and the supply of the easier to obtain energy resources has been depleted. Meanwhile the 1% has some 80% of the economic wealth, while the 99% live on the rest.

I did some calculations of the way 7.6 billion people have divided up the total of $280 Trillion Dollars in the world (Boje, *in press*):

* 8 Billionaires have 50% of $280 Trillion Dollars wealth of the world of 7.6 billion people
* Top 1.5th of 7.6 billion people living on $169.5 dollars a day;
* 2nd 5th of 7.6 billion people living on $20.45 a day
* 3rd 5th of 7.6 billion people living on $8.77 a day
* 4th 5th of 7.6 billion people living on $4.38 a day
* Bottom 5th of 7.6 billion people living $2.05 a day

And the future is not equalizing this wealth distribution. Rather, year-by-year is the prediction is the a few billionaires will amass, 60%, then 70%, and 80%, and finally 90% of the wealth of the world. If you contrast the antenarrative scenarios, then climate change and wealth concentration combine into several bets on the future of humanity. The good news is we could take the UN SDG’s seriously and choose which downward spiraling Tourbillion future we want to bring into being. A Tourbillion, here, is defined as a destructive spiral of greed, gluttony, and growthmania resembling a whirlwind. It is moving rapidly across every nation and affects every person and all species. I see five spiral future scenarios.

1. **Medieval Tourbillion Spiral** – the 1%ers amass 90% of the $280 Trillion wealth of the planet living like Kings and Queens in castle moated splendor, while the 99% become their medieval serfs and slaves, and poorest of the poor die soonest, but most die eventually
2. **Utopian Tourbillion Spiral** – the politicians promise this or that utopia, such a space colonization in our life time, but at the same time perpetuate the same greed, gluttony, and growthmania waste-and-pollute pathway and 6th Extinction brings most humanity to an end
3. **Scapegoat Tourbillion Spiral** – the politicians scapegoat immigrants and blame big government for spending money that could be used for the military industrial education complex, and you guessed it, most people die in succession of wars and famines of 6th Extinction.
4. **Business-as-Usual Tourbillion Spiral** – There are promises of corporate social responsibility, even yearly awards, but the carbon credit schemes don’t deliver the promised result, and there is not enough energy for the Internet, or power to your average home, and the 6th Extinction kills off most of humanity, but the corporate CEOs last a bit longer than most.
5. **Surrender the Tourbillion Spirals above, and move to Simplicity, Permaculture, and Zero Waste lifestyle** – Likely to only occur in small spaces of the global economy that is living in storytelling illusions they will be the lucky ones to escape the 6th Extinction, when its already on our doorstep

Obviously, all five Tourbillion spiral scenarios will happen, and are happening, as we make the shift from fossil fuel energy, and Carboniferous Capitalism to something that has less greed, gluttony, and growthmania. It is a slow transition since the Carboniferous billionaires have many sunk costs, and amassed enough wealth and control of Carboniferous global corporations, hiring lobbyists to influence politicians that will make this a very slow transition.

We have passed into the strangeness of quantum mechanics, long ago. We are not playing billiard ball physics any longer. We have to evolve out of 6th extinction into de-extinction mode. My personal double spiral is turning and energizing a new spacetimemattering. There is, for me, a downward whorling Carboniferous Capitalism spiral in which I very much participate, no matter how reluctantly. There is also the possibility of an upward whorling spiral I can participate in by making different day-by-day decisions. I am ingesting different experiences, as a writer, a teacher, and a resident of New Mexico and the planet. My living story, my narrative and counternarrative, as well as my antenarrative moves to bring about counter-extinction are radically transforming my lifestyle.

Here is an example. Gandhi had ten rules for changing the world (Edberg, 2013).[[3]](#footnote-3) I chose one of Gandhi’s sayings to go along with each of the ten rules Edberg has crafted, and put in some storytelling of my life these days:

1. **Change yourself.** As Gandhi put it “you must be the change you want to see in the world.” To counter the 6th extinction, I have to be the change I want to see globally. My example is that yesterday (Oct 28) I began building the ‘double Dutch bucket’ aquaponics system I intend to move into the ‘double greenhouse’ earthship that my friend Steve Self and I began developing last week. I need the earthship greenhouse in order to control the growing temperature for seeds I am planting. It also meant retrofitting my rain barrels, and going though a steep learning curve about aquaponics. Aquaponics is a system of growing fish that provide the waste products that feeds the fruits and vegetables I am growing. The double Dutch bucket system is a 5-gallon bucket of plant medium, inside another bucket containing the water. A series of double buckets are plumbed together using PVC pipe. This all started when I decided to get rid of the single-use plastic in my life, which meant I had to begin to bring my own shopping bag, refuse those plastic bags, not consume anything in single-use plastic. This is pretty much everything from toothpaste, shampoo, deodorant, shaving cream, to water. I began concocting recipes for each of these products. For example, since shampoo can include plastic, is often full of sulfates, and comes in a plastic single-use container, I began to use castile soap. For condition I use the gel I extract from Aloe Vera shoots (which is a great hair protein) growing in our home, table spoon of bentonite clay (acts as a sponge to soak up toxins & is good for the scalp), and add ten drops of Rose Absolute or Petri oil (as moisturizer, plus it smells amazing). I liquefy the Aloe Vera gel in a blender, and put the entire mixture into a small mason jar.
2. **You are in control**. “Nobody can hurt me without my permission.” Plastic and 6th extinction cannot hurt me without my permission. Microplastics are already in our bodies, but I can keep from ingesting more of them (Atometry, 2018).[[4]](#footnote-4) 93% of Americans over age six will test positive for BPA plastic, and it alters hormones and has many other potential health side effects (Ecowatch 2018).[[5]](#footnote-5) Microplastics have been entering our body through the food chain because our entire planet, its waters and land is not polluted by microplastics (microbeads once used in toothpastes and exfoliating skincare products), plastic lint from our synthetic clothing, plastic blown from landfills into water streams entering oceans, and so on) that are breaking down into nanoplastic particles too small to see without a high powered microscope. I can take control of my own lifestyle, by filtering my own rainwater, making personal care products without the plastic, and refusing to participate in the planned obsolesce plastic nightmare.
3. **Forgive and let it go**. “The weak can never forgive. Forgiveness is the attribute of the strong.” I have to forgive Carboniferous Capitalism, and the fracking of gas and oil to keep making the single-use plastic planned obsolescence, that covers the planet in a layer of plastic. Each year 36 billion plastic water bottles \and 500 billion single use plastic bags head to the landfill. But some part of that enters the ocean from the land, and covers 40% of the ocean surface (46,000 plastic pieces per square mile). The plastic in the ocean has killed 44% of seabird species 22% of cetaceans, and growing list of fish species. Over the last decade, more plastic was produced than in the last century. Of this quantity, half is single use plastic. Only 5% of plastic is recycled, and all of it only one time. Plastic uses about 8% of the world’s oil production. Except for a very small amount burned in landfills, all the plastic ever produced is still with us today. This is a lot to forgive.
4. **Without action you aren’t going anywhere**. “An ounce of practice is worth more than tons of preaching.” I am transitioning from New Mexico State University, entering retirement, becoming Emeritus, effective January 1, 2019. I have started to practice what I preach during this last semester at the university. My practice is to make my own products without plastic, refuse the single-use plastic wherever possible, and begin to grow my own fruits and vegetables. I am already vegan, so no need for meat or fish. This will not save humanity and most land, water, and plant species from the 6th extinction. It will be a way for me to put into practice what I preach in the ‘leadership in society’ and the ‘small business consulting’ courses at my university. Each course applies the 17 UN sustainable development goals (SDGs) in each of the student’s term projects, and in every one of their weekly writing assignments.
5. **Take care of this moment.** “I do not want to foresee the future. I am concerned with taking care of the present.” With antenarrative processes, we do not know exactly which of many potential futures we will be collapsing into being our future. However, we can stay that we are in the throes of the 6th extinction and it’s a downward spiral into oblivion. I can take care this moment by walking the New Mexico desert with our two dogs, Honey and Sparkles, and picking up at least three cans and bottles. I also pick up the tires people discarded near the property. I need more used tires, so I go to a local tire shop, and they willingly give me all I can handle, which is about 500 to 1000. These items will become part of the thermal mass of the double greenhouse Earthship, Steve and I have begun to build. We are using plans from Earthship Global Volume Operation 1: Tire Work that you can find on the web.[[6]](#footnote-6) Michael Reynolds began seizing the moment in New Mexico. A film about his resistance to the New Mexico legislature, how New Mexico took his architectural license from him, and after years of work got the Earthship to be way to take care of humanity.[[7]](#footnote-7)
6. **Everyone is human**. “I claim to be a simple individual liable to err like any other fellow mortal. I own, however, that I have humility enough to confess my errors and to retrace my steps.” I have been an active, though reluctant participant in Carboniferous Capitalism. Have been in errant, like most everyone else on the planet, contributing to 6th extinction. I own it. I am retracing my steps, to take advantage of some of the best solar energy power opportunities on the planet. New Mexico has the sun energy that powers the photovoltaic arrays I installed abour 14 years ago. We bought additional arrays about six years ago and produce more electric than we get from the grid. Someday I want us to be off grid.
7. **Persist**. “First they ignore you, then they laugh at you, then they fight you, then you win.” First students and most everyone laughed at the double spiral theory. Then it appeared in the 2014 book (Boje, 2014). The top-tier Academy of Management Journals, gave double spiral some good reviews, but ultimately rejected it. In 2017 my work with a team of spiral enthusiasts got into a journal article (Boje, Baca-Greif, Intindola, & Elias, 2017). This was a small win.
8. **See the good in people and help them**. “I suppose leadership at one time meant muscles; but today it means getting along with people”. Leadership has been obsessed with the great man (or great woman) leader theories. Go to any blockbuster movie, and it is about an action hero, a lone leader, who everyone else learns to follow. Grace Ann Rosile, Carma Claw and I (Rosile, Boje, & Claw, 2018) theorized an ensemble leadership theory in which, ‘everyone is a leader’ working together, without being forced into a great man or great woman ‘hierarchy. There are many good people, not in positions of great leadership that are forming ensembles to do something to transition from Carboniferous Capitalism forms of managing and organizing to ensemble leadership for a Post-Carbon Capitalism. As the 6th extinction becomes more self-evident to the masses, I believe ensemble leadership will become a way to de-extinction.
9. **Be congruent, be authentic, be your true self**. “Happiness is when what you think what you say, and what you dare are in harmony.” This to me is the basis of ‘true storytelling’ (Boje, Larsen, & Brunn, 2017). The first principle is Truth: You yourself must be true and prepare the energy and effort for a sustainable future. I am in two spirals, one downturning, and the other upturning, one a downdraft, and the other an updraft. Both are simultaneous. I am transitioning to a new orbit, a new way of Being-in-the-world.It will take a long time, the rest of my life, to become congruent, authentic. It’s a process of choosing projects that become less and less dependent upon Carboniferous Capitalism, and more in balance with the 17 UN SDG’s, and a life style in balance with the limits of planetary capacity to support biodiversity.
10. **Continue to grow and evolve**. “Constant development is the law of life, and a man who always tries to maintain his dogma in order to appear consistent drives himself into a false positions.” By this I think Gandhi means we have to give up dogma. We have to see that consistency is overrated. We have to evolve, and adapt to the way the planet is evolving.

In conclusion, the new directions of the spiral paradigm are just in time to effect climate action. The double spiral sheory is a transformative system of storytelling in which we learn a new living story that is in balance with planetary capacity. The method involves working simultaneously with the spacetimemattering of both spirals, and living each day to make the upward path stronger than the downward path. In practice this means living in both whorls, the down-whorl and the up-whorl. In this pay the spiral praxis evolves so tha theory plus method becomes practice of our lifestyles.

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