19. Paleontology and the Future with Michael Garfield

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Future Sense is a podcast edited from the radio show of the same name, broadcast on BayFM in Byron Bay, Australia, at www.bayfm.org. Hosted by Nyck Jeanes and well-known international futurist, Steve McDonald, Future Sense provides a fresh, deep analysis of global trends and emerging technologies. How can we identify the layers of growth personally, socially and globally? What are the signs missed; the truths being denied? Political science, history, politics, psychology, ancient civilisations, alien contact, the new psychedelic revolution, cryptocurrency and other disruptive and distributed technologies, and much more.

This is Future Sense.

Nyck: Good morning to you. You are now tuned to *Future Sense* here with myself, Nyck Jeanes, and Steve McDonald. Morning, Steve.

Steve: Good morning, Nyck. How are you this morning?

Nyck: I'm very good, I'm fine. It's lovely to come out at this time for our show and it's actually 'morning' when we get up.

Steve: That's right. Daylight saving finished yesterday.

Nyck: Kind of enjoyed that.

Steve: And we're back in sync with the sunrise again, which is lovely.

Nyck: Back in sync with the sunrise. Now we've got a pretty interesting show today. We are going to be talking, in about 20 minutes or so, to Michael Garfield in Santa Fe.

Steve: Yes, a friend and fellow futurist of mine, who's well read on *Integral Theory* and *Spiral Dynamics*, so he speaks our language.

Nyck: He's also a paleontologist and his day job is Communications Strategist for the Santa Fe Institute, which is the world's pre-eminent complex systems science research organisation.

Steve: Very interesting, yes. Last time I caught up with Michael was in Austin, Texas, when he was living there. He just moved to Santa Fe, not long ago actually, to take up that new position.

Nyck: He's also a host and producer of a podcast himself called *Future Fossils* (https://shows.acast.com/futurefossils)—I guess that refers to his paleontology—and by night, he writes the speculative non-fiction essay series, *How to Live in the Future* about human technology, co-evolution and the future of the biosphere, and other stuff, too. Pretty interesting, dude, indeed.

Steve: Yes, interesting that an interest in paleontology led to thinking about the future, hey?

Nyck: Yes, and talking about paleontology just quickly, I thought maybe this was appropriate. You might have seen the *ABC News* report about researchers uncovering the 66-million-year-old fish fossils from the day that the dinosaurs died (https://www.abc.net.au/news/2019-04-02/research-into-the-day-the-dinosaurs-died/10960446). We might get his view on that, too. I think this is a fascinating little piece because it's saying that they have now been able to literally take a fossilised snapshot of the day—of the very day, nearly 66 million years ago—when "an asteroid smacked into the earth, fire rained from the sky and the ground shook far worse than any modern earthquake." How can they do that? It's extraordinary.

Steve: Well, I think the point they're making is that it happened in one day—in one day the entire earth was transformed from this massive collision and the heat and waves and all the rest of it.

Nyck: Yes, and it's kind of important that we see that these things do actually happen on this planet.

Steve: It is important, and it made me think of the *Younger Dryas* event, which supposedly happened roughly about 12,000 years ago, where something very, very similar occurred—a meteor or smacked into the Earth and created floods and tidal

waves and most likely gave rise to the famous flood stories which come from all cultures.

Nyck: Yes, the Ark. We'll talking to Michael Garfield and we've got some other important things to talk about too. We'll talk a little bit about 5G, the 5th generation.

Steve: Yes, we've been waiting to hear about trials, and there's some recent news about a trial that they tried to do in Brussels which was rejected.

Nyck: Absolutely. And the first picture of the first black hole, supposedly, is going to be released in a couple of days. We might mention that and talk a little bit about that; and a little bit about the possibility of a hyper-crash. We're always talking about the fragility of the current system. That is, I guess, one of the reasons we sit here in these chairs, is to really talk about just that.

Nyck: Very shortly we'll be talking to Michael Garfield from the US. He's a paleontologist and a futurist and much more.

A couple of small things, though. We've just been alerted to a vegan protest going on in Melbourne's CBD at the moment. Interesting. What do we know about this?

Steve: Don't know much. We just saw some tweets Rose Hill sent through to us.

Nyck: G'day Ross.

Steve: Thanks, Ross. What I thought was interesting from the photo that I saw was the way that they're protesting. Instead of being in a large concentrated group like most protests, they are spread out across the road, or down the road—blocking the road—with what look like 20 or 30 metres between each individual holding a sign, which of course, makes it much harder for law enforcement to control them if they're spread out over a large distance.

Nyck: Is this an example of the wisdom of crowds?

Steve: It could be, yes. I think it's quite an intelligent way to bring traffic to a standstill and remain less vulnerable to action.

Nyck: True. And there's also some other demonstrations apparently at abattoirs around the country. It's a strong thing, veganism, and I certainly support the idea that we shouldn't be eating as many animals as we do. Being a vegan, of course, means you don't eat any animals, including even the honey from the bee, which I personally can't get on board with, but I certainly agree that we do need on the planet, probably to eat less meat. But the almost militaristic style—and I hesitate to use that word—of vegan activists is a strong response, isn't it? How would we configure that?

Steve: From a developmental psychology point of view, you're talking about conformism. So there's a shared belief and a feeling within a group that everybody needs to conform to that belief, and in this case, a feeling that everybody outside the group also needs to conform to the belief. It just depends. It's kind of like a spectrum as to how strongly that belief is held and impressed upon others, but these conformist worldviews, of course, belong in the community side of the evolutionary spiral—so we're talking about the even-numbered systems in Clare Graves's model which have been Tribalism and Authoritarianism and now the emerging Relativism—and so you really need to talk to the individuals involved to get a true analysis of which one of those systems is really driving their behaviour. We know, for example, that 4th system, the absolutistic way of being human, has a tendency, or can be taken to an extreme, and then it turns into a type of fundamentalism, which we've seen behind a lot of conflict in the world throughout history. In this case, the conformist belief is being expressed in a very peaceful way, so that suggests it's more likely to come from the emerging Relativistic Postmodern network-centric layer.

Nyck: We should actually, before we talk to Michael Garfield, give a brief sketch about Clare W. Graves's work in terms of those layers because we're probably going to be talking about those a little bit.

Steve: Yes, Michael, I think, is used to using the coloured code from the *Spiral Dynamics* book, and so I just wanted to really briefly explain that the Modern Scientific-Industrial paradigm, which we're moving out of at the moment, is coded Orange in *Spiral Dynamics*, so you might hear us talking about Orange—we're talking about the old paradigm in that case. Going back another paradigm to the absolutistic Authoritarian-Agricultural era or paradigm, that's coded Blue, so Blue to Orange, the Modern Scientific-Industrial, and then Green is the emerging, some call it Postmodern, some people, I think, might even be calling it Post-postmodern, but relativistic human-values-centred, network-centric.

Then we have the big leap into Second Tier. The first layer in Second Tier is coded Yellow and then Turquoise is the second layer in Second Tier, so from the Authoritarian Blue to the Modern Orange to the Relativistic Green and then into Second Tier, Yellow.

Nyck: Which is essentially where most people on the planet are, in one of those four layers.

Steve: Across that spectrum.

Nyck: We've got a text in just about the vegan protest down there in Melbourne. A listener has texted in, and thank you for that: "The protests have been organised to mark the one-year anniversary of the release of the documentary Dominion, which looks into practices employed daily on Australian livestock farms. It's Australian wide." Full credits for that.

Nyck: You are here on *BayFM*, on *Future Sense*, with Steve McDonald and myself, Nyck Jeanes, and it's a great pleasure to welcome our guest this morning all the way from Santa Fe—well, he's actually in Santa Fe, New Mexico, in the United States—poet, philosopher, paleontologist, futurist, Michael Garfield, who "seeks to restore soul to futurism", I like that, "and midwifing new myths that can cultivate the curiosity and play we'll need to thrive in our accelerating age" (https://michaelgarfield.blogspot.com/p/writerspeaker.html). He's also the "host and producer of *Future Fossils* podcast devoted to the integration of art, science and philosophy—a transdisciplinary approach to our age of planetary crisis and renaissance. In the daytime, he works as a Communications Strategist for the *Santa Fe Institute*, the world's pre-eminent complex systems science research organisation, and by night, he writes the speculative non-fiction essay series, *How to Live in the Future*, about human technology co-evolution in the future of the blogosphere." So a pretty interesting chap and a great pleasure to welcome Michael Garfield to *BayFM* here in Byron Bay. G'day Michael. How are you doing?

Michael Garfield: I'm well. How are you?

Nyck: Good. There's an introduction for you.

Michael Garfield: Yeah, thanks.

Steve: Good to have you on the show, mate. It's been a while since we had a chat, apart from our catchup on the weekend.

Michael Garfield: Yes, it's been two years.

Steve: Yes, it must be two years. We were just chatting off-air about this recent article about the 66-million-year-old fish fossils from the suspected asteroid impact. Tell us about that. What your view on that from a paleontologist's perspective?

Michael Garfield: Well, it's an interesting case. I was a student under Robert Bakker who was kind of the rogue loner paleontologist who was largely responsible for changing the brand and the image of dinosaurs back in the 80s and 90s—you know, from these like sluggish, cold-blooded things, to hot-blooded family-living, active, dynamic creatures.

Steve: Come to think of it, I can see the big image change there now. That really did happen, didn't it?

Nyck: That's great.

Michael Garfield: Yes, and he wrote this book *Dinosaur Heresies* that I got as a kid when I was way too young to be reading stuff like that (https://en.wikipedia.org/wiki/The_Dinosaur_Heresies), and then he consulted on *Jurassic Park*, but anyway, the point is that Bakker was a crime scene investigator; he was not somebody that was just blowing fossils out of hillsides. He was really looking at the way that he could reconstruct the lives and the landscapes and the ecosystems of these creatures using very nuanced and subtle techniques—the collection of broken teeth that the animals lost while eating, so that he was able to track seasonal feeding patterns, even when the sedimentary record of these creatures would not resolve ... like, you get a 100-year or a 1,000-year flood and so you can't really make out, in some respects, what was really going on on an annual basis, but he was nonetheless able to find these really nuanced ways of doing that. He always had an objection to the asteroid impact hypothesis for dinosaur extinction. Not that it didn't happen—I mean, the evidence is very, very strong that it did, and this local site is a really excellent example of that, where you're seeing the molten glass that got forced into the gills of all of these fish by the tsunami created by the asteroid impact in Mexico—but he was an advocate of a theory of mass extinctions that has since come to be called the *press-pulse theory* (https://www.researchgate.net/publication/40663783_Press-pulse_A_general_theory_of_mass_extinction), which is just that we look for these like

silver bullets, these fabulous explanations, something that would look good on television, and, of course the asteroid impact has been rendered with computer graphics probably hundreds of times for various documentaries. It's a spectacular event.

Steve: Yes, and would I be right in saying that that asteroid impact is what created the Gulf of Mexico? Is that the thought?

Michael Garfield: The Chicxulub Crater. There was already, not the Gulf of Mexico per se because that is more the joining of North and South America and the land bridge created by that. There is an enormous amount of displaced land in that area, but the thing is that there was also, around the same time in India, a two-million-year-long volcanic eruption. There was the formation of new land bridges that were leading to the migrations of animals between continents, spreading disease—a lot of different things going on at the time.

Luis Alvarez, from the Alvarez father-son team, first found the evidence for this impact in a layer of radioactive dirt all around the world—there's this layer of iridium, which is a radioactive isotope that we only find in meteor impacts and volcanic eruptions, and they found this thing. But Bakker was like, 'well, of course this was not a fun place to be 66 million years ago, but at the same time, we're talking about the extinction of not just the dinosaurs, but of 75 percent of life on Earth, and if you look at every other mass extinction on the planet, the one that that led to the age of dinosaurs, the Permian extinction, which was even more catastrophic and terrible, it had to do a lot more with volcanoes and the release of methane gas.' I grew up kind of trained to think about things as having more than one cause.

Steve: Yes, that's really important.

Michael Garfield: It's not so simple. It doesn't make sense for us, as potent of an image as it is, but it's misleading to say that this one event was the sole contributor to this planet-wide tragedy.

Nyck: Which is a rather good analogue of life on Earth right now, isn't it? Just on that point, the volcanic activity, I think, is rather important. There's a piece that a listener has texted in just now, this morning, from *National Geographic* from last year—a good sort of straight publication, but some good stuff in there—and it says that: "Volcanic eruptions plus the asteroid caused a one-two punch"—that's what their theory is. "The volcanism provided the first strike, weakening the climate so much that a meteor--the more deafening blow--was able to spell disaster for *Tyrannosaurus rex* and its late

Cretaceous kin" (https://www.nationalgeographic.com/science/article/what-killed-dinosaurs-volcanoes-asteroid-earth-science), so I guess that's a more likely scenario, a more complex scenario.

Michael Garfield: Yes, and there's other layers of complexity to this. It's still somewhat controversial, but there is mounting evidence that entire lineages of organisms become specialised to a particular ecological milieu, and then the world changes and due to the bias inherent in the way that their genes regulate the development of that organism, they've sort of painted themselves into a corner, and the older and the more specialised a lineage of organisms becomes, the less flexible it is. It's sort of a genetic senescence, an aging of entire clades of creatures.

Nyck: That's fascinating.

Michael Garfield: I know that you like talking about psychedelics on this show, and I think it's worth mentioning, with regard to the dinosaurs, that the literal blooming of flowering plants about halfway through the age of dinosaurs led to a whole suite of new niches, new opportunities for psychedelic substances to emerge as ways of confusing the predators of various types of plants and fungi.

Steve: Yes, an increase in novelty.

Michael Garfield: Yes, there's some great research that suggests that the modern relatives of dinosaurs, birds and crocodiles, lack taste aversion—they lack the ability to taste something and know that it's bad and then learn not to eat it. We have, trapped in amber, evidence of a psychedelic ergot fungus from the age of dinosaurs and I think it's kind of interesting to think that about halfway through the age of dinosaurs, there was a smaller but still significant extinction in which creatures like *Stegosaurus* phased out around the time of the flowering plants, and that the dinosaurs were already in decline through the last half of their reign in terms of species diversity and their ability to adapt to the rapidly changing ecosystem that was catalysed by the emergence of flowering plants. They may have been slowly poisoning themselves for 100 million years.

Steve: And this is a topic that is extremely important to us and our own species at the moment as we're facing radical changes in our life conditions, in our environment systems and those sorts of things. Our capacity to transit through this period of rapid, disruptive change is going to be a direct function of our ability to sense and learn and act and adapt as a species to these new conditions.

Michael Garfield: Yes, definitely. I gave a talk a couple of years ago at the *Global Eclipse* gathering in Oregon where I compared the emergence of flowering plants and pollinators to the emergence of mobile devices and social networks, and how we're at this point now where we tend to think of creation and destruction as separate things, but it's really a matter of 'for whom is it creation and for whom is it destruction?' Who has the flexibility—not just the resilience, but the adaptability—to adjust to these very rapidly evolving contexts? I think there are a lot of things that have proven to be robust and to be able to surf the singularity, as it were, and a lot of things, both culturally and biologically, that are falling by the wayside, but I do think it's a mistake to think of our age merely in terms of the catastrophic loss of biodiversity that we are causing to the systems when there are so many new forms of diversity that are springing up in their stead. I think there have to be better ways, more nuanced ways, of talking about comparing these kinds of diversity.

Take, for example, ecologists. By-and-large, conservation ecologists are moving out of this conservative view where we're trying to restore the ecosystems that human beings themselves actually created thousands of years ago—this sort of British parkland fantasy of Eden; a lost romantic Nature—and that's just not the case. We've been living in an environment that has been shaped by dynamic interactions between plants and animals and fungi and bacteria and other microbial organisms since the very beginning.

Steve: Absolutely. There's a tonne of stuff to unpack from what you've just said.

Michael Garfield: Yeah, go for it.

Nyck: And just for listeners here in Australia who are hearing you from a long way away, you've also been here in Australia and you had quite a connection to our good friend, Danny Schreiber in *Starseed Gardens* before he passed away, and I'm playing in the background just a little bit of your piece of music called *Listening to Plants*. So that connection that you have between, as you talked about, the various kingdoms and particularly the biome, the gut biome—of course, Danny Schreiber's later work was particularly focused on that. Can you speak a little bit to towards that connection that those things have with each other; the complexity there?

Michael Garfield: Definitely. One of the things I loved about Dan was that he was so delighted in his refusal of the idea of himself as a singular thing; that he really made the point in conversation to assert that he was a plural identity, that he was a collective of all sorts of different creatures living in harmony with one another, and when you talk about this movement from the Modern notion of the individual into Postmodern forms of identity, this is certainly something that I think is catalysed by the complexity of our lives online. It's so easy for us to move from one social context to another and in so

doing, reflect a completely different identity. I think the notion of a plural or networked self is really rearing its head these days.

Steve: That's true. One of the interesting things about the current paradigm shift that's going on—I'm talking about, in very general terms, the dominant global paradigm shift from the Modern Scientific-Industrial mindset to this Relativistic network-centric, humanistic, Orange to Green in *Spiral Dynamics* terms—and one of the aspects of that is that if we look at the spiral overall, we know that in the collective systems—that is the even-numbered systems in Clare Graves's model: tribalism, authoritarianism and the emerging paradigm—they all have very long-term views of time. On the opposite side of the spiral, in the individualistic systems—we're talking about Hunter-Gatherer, about Egocentric-Warlike, and about the Modern Scientific-Industrial—it's always a much shorter perspective on time, and so in this process of moving from a short-term outlook to a long-term outlook, the value of the kind of stuff that you've studied, of looking at these ancient fossils and the records and the cycles and change dynamics that are evident over the long, long periods of time, is something that we need to shift our attention to as a global society in particular, in order to cope with the radical, rapid, disruptive change that's really on our doorstep right now.

Michael Garfield: Yes, I think it's an important point to make that it's also an adaptive strategy at the individual level. I think that so much of the reason that I think about this stuff is actually as an antidote to the fear that emerges in confronting these radically disruptive, turbulent periods of history. To be born into an age of this kind of extraordinary change, so much of the conversation around what we're living through right now is as though it were completely unprecedented, as though it's a radically unique thing, and I think that part of that emerges from this bias towards this short timeframe and a linear storytelling. Also, you talk about the Orange meme, the modernist, achievement-based kind of a thing where we want to pat ourselves on the back, still, for being so unique and special, and the fact of it is that to see what we're living through right now purely exclusively through that lens is to refuse the opportunities that we have to anchor what's happening now in a much, much deeper frame.

I think that to understand the history of evolution and of mass extinctions and mass evolutionary adaptive radiations, and these enormous movements and the symphony of Earth history, is really helpful, at least for me, as a way of sort of normalising this kind of change. Just saying, you know, there are strategies that life has come up with for handling periods of Earth history like this. We don't have to derive our tools or our techniques for navigating this kind of turbulence from first principles; we can look at the way that bacteria handled the oxygen catastrophe 2 billion years ago for some insights, for example, into how to deal with pollution and this crisis of industrial by-products and plastic islands. We've got ancestors that we can solicit for this; we have elders that we can turn to beyond the human world.

Steve: For sure.

Nyck: Fascinating.

Steve: Welcome back to *Future Sense* and we're talking to Michael Garfield, futurist and paleontologist and social media expert at the *Santa Fe Institute* in New Mexico.

Michael, to continue our discussion about these long cycles of time and how we can learn from the past to help create and smooth our transition into the future, you were talking during the break there about storytelling and how we tell stories and this fascination we seem to have for mass extinction. Talk some more about that.

Michael Garfield: The whole thing is that we do want stories.

Nyck: Yes, we're story-making creatures, aren't we?

Michael Garfield: Yes, but I think it's also that in the first hundred years of evolutionary science, we were not really aware of the fact that we were telling a story. We've had to adjust to the sort of Postmodern philosophical term and accept that when we speak, that it's not just about the object of our sentence, but the subject and the verb also. Who is making the claim? How did we come to this understanding? This is a really important thing to consider when we reflect about the ways that evolutionary thinking has been so painfully, horribly abused over the decades by *laissez faire* capitalism, by genocidal dictators, so it's I think that's part of it—I think that's part of the reason it's important to regard all of these stories as stories.

Steve: Yes, the storytelling process is such a part of the communal layers in the spiral of consciousness. Here in Australia in the last couple of years, I remember seeing an amazing report in the media of an astronomical event, which was something to do with a supernova, I think, which had been recorded in Aboriginal oral history. This happened 30,000 years ago and the story of that particular bright line in the sky was still being told to the present day in that local culture that gave rise to the story. That's just incredible to think that an important event like that could be carried down for 30,000 years through oral storytelling.

Michael Garfield: Definitely. The fantasy author, Neil Gaiman, spoke at the *Long Now Foundation* in San Francisco—an organisation devoted to this kind of long-term big

picture thinking, helping us situate ourselves in a complex time where we're thinking about the rapid timescales of fashion and social media and the slower timescales of government and civic infrastructure, and then the even longer timescales of cultural evolution and natural cycles—and Neil Gaiman said in his talk, 'if you really want to pass information down through the centuries—for example, if you want to ensure that people don't go digging in your nuclear waste disposal site—the best thing that you can do is start a religion because the way that we understand and contextualise … you know, the words change their meaning over time, but taboos are remarkably consistent; remarkably stable.' That's kind of an aside but if I can get kind of meta about it, it's good for us to investigate, as evolving creatures ourselves, as creatures that understand …

Steve: Oh my goodness. We lost you for a sec. Please keep talking.

Michael Garfield: This is the space monkey challenge of the trans-oceanic live radio call.

Steve: Don't worry, we have this amazing national broadband network here. We think we're rated at about 52nd in the world.

Nyck: And dropping daily.

It's great, Michael. You referred to a term which I think is really good. You talked about 'cumulative culture'. I never really thought about that, that humans have this cumulative culture which other animals don't seem to actually have, and this is what you're talking about—this cumulation. It really triggered this notion for me. Of course it's not a linear thing, it's an expanding, ever complexifying process of culture that we're involved in—this cumulation of culture. Can you speak a little bit further about that? That's fascinating to me.

Michael Garfield: Yes, like I was saying a moment ago, maybe it was lost over the signal glitch, but evolution sort of leaves us at the station of our human nature, and here we are and we're observing this from the outside, objectively, but the very tools that we use to explore our world and our human nature are themselves the products of evolution, and the stories are selected for in the same way that organisms are selected for. The whole thing about cumulative culture, which is this notion that we externalise our knowledge in books and other forms of media so that we can pass them down in ways that transcend the limitations of our individual bodies and even the our individual cultural modes—that this is, I think, evidence that the human social superorganism is now the main player. At the moment of the origin of human culture, the tribal moment

that we came together and we realised that we could teach each other and that we could pass down wisdom from our grandparents to our grandchildren, this represented a moment very much like the origin of the cell when these molecules were sort of bound together inside of a membrane. On the origins of life, researchers talk about this protocell in which there is like a moment that things were almost a cell, but not quite; paleo-anthropological researchers propose that there might be a social protocell, a moment that right before the tinder lit on human society, that there were all of these sort of loose primate troops that were learning from one another, but that they weren't like compressing their knowledge into forms that could endure down through generations and in any kind of reasonable way that then conferred a survival benefit to the entire community. Basically, what makes us unique, if anything makes us unique as human beings, is simply that our cultural traditions and our tools are now a part of what it means to be human and that they always have been.

And so, to this thing of looking for precedents in the past to understand what we're living through now, when people talk about the singularity, this moment that the machines sort of supersede us and that we're no longer in control of our evolutionary story, it's like, 'no, the singularity happened 500,000 years ago.'

Steve: I think it was even longer ago than that, actually. I often say that the singularity has already happened; it's just human consciousness that's growing into trying to comprehend what happened.

In this transition from the Modern Scientific-Industrial to the next paradigm, we're leaving behind an individual way of being human, and we're also leaving behind our materialistic, disconnected-from-nature worldview, and I think those are two really important aspects which will change and are changing, and that is leading us into this different perspective that you're painting very beautifully here, the first one being that that we are not part of nature—and this has been the commonly-held belief during the last old paradigm.

Nyck: Since the Enlightenment, certainly.

Steve: Yes, and that's changing. It's most immediately changing to reconnect with Earth as our most immediate representation of Mother Nature herself, but also, nature extends into the cosmos and perhaps even into other universes—nature is infinite—and reconnecting with that and thinking differently as part of that instead of thinking as if we're separate from that, it is key to this. I think what you just said there is a really great example of how our thinking can change to embrace that and start to see ourselves as being a participant in this process of unfolding cycles and also in two-way communication with the rest of nature. It's not a one way discussion; it's not just us observing; it's us actually being embedded in and learning from that, also.

Nyck: And finding communication pathways too.

Michael Garfield: Definitely. That's a perfect example of the story itself, I think, as the evolutionary object or a process. With value memes, you talk about these as things that emerge within a particular container—a social context of tools and beliefs and traditions—and to the extent that we're actually just being operated on by our stories, I think it's really actually beautiful. Since the 1960s when Lynne Margulis introduced the idea that complex life actually emerged out of intimate collaborations between simpler forms of life, at first that was very controversial and now it's accepted, and so in a kind of weird meta way, I really enjoy watching the stories and the ways that these stories act upon us as changing to suit the environment that their changes to us have created, because it's like there's a ratcheting effect where, as society becomes more complex, it requires of us more complex ways of thinking, interacting, communicating about these things, and then that new complexity just creates more complexity.

Steve: It does, it's a two way street. We talk about this double-helix model of Graves's, where one is the complexity of life conditions and the other is the adaptive nature of human consciousness, and when life conditions become more complex, human consciousness adapts to operate in more complex ways, and then we create more complexity ourselves in our own life conditions so it's a spiralling interactive process.

Nyck: Exciting.

Nyck: You're tuned here to *Future Sense*, and Michael Garfield who we've been talking to today—paleontologist and futurist who lives in Santa Fe, originally from Austin, Texas, and also host and producer of *Future Fossils* podcast. We're talking about all sorts of things, and it's a very rich conversation. Much to talk about, much to think about. We're going to bring it to a pretty common theme, and that is the theme of time itself.

Steve: Right now.

Nyck: Right now, here we are. I like.

Steve: Michael, you suggested maybe turning the tables here and asking me some questions.

Michael Garfield: Absolutely. I think one of the things that I am really curious about, given the amount of time that you've spent on *Spiral Dynamics* and more generally on human developmental psychology, is the way that time is understood differently by all of these different layers. This is something I'd love to get into in much more detail with you on my own show when we get that together, but I'm really curious how you think that living online—living in a planetary culture—is changing the way that we understand the ideas or the experience of past, present and future.

Steve: Yes, sure. It might be useful just for me to step through the different worldviews, the layers of consciousness, maybe starting at Blue or Layer 4, which was the absolutist Authoritarian worldview that emerged following the Agricultural Revolution. That was really the emergence of cause-and-effect thinking, so it was a time when we moved out of what's known as the pre-rational zone where our behaviour, our being, was really dominated by urges and instincts and very much in the moment—in the present. The frontal lobe development was completed and we developed this capacity to think about what we were doing—think about concepts—and the rational mind sort of became dominant in our state of being. That's where we saw the emergence of this cause-and-effect thinking where we could think in a very linear way, but we could think about, 'OK, if I do this now, then something's going to change in the future', or 'if I don't do this now, something's going to change in the future', so that was very much a product of that Blue 4th layer consciousness.

Then from there, moving back to the individual side of the spiral with the Scientific and Industrial Revolutions, the Enlightenment, the emergence of this modern worldview, modern perspective on being human, time became a precious resource. We were still kind of locked in this linear concept of time but we had multiple choices in terms of the future and what we did with our time. Graves called this particular layer of conscious Multiplistic for that reason, because it broke out of linear thinking and all of a sudden there were possibilities in the future, whereas previously the future was absolutely linear, and it was like, 'if this, then that'. Now, in the Modern era, we have this multiplistic view which gives us options, and 'if I do this this way now, then that's going to be the future, and if I do this this other way now, then something else is going to be the future', so we broke out into multiplicity.

What's happening now, as we're transitioning from that into the next way of being human, which is this Relativistic way where it's very network-centric—we're very focused on the human experience, human values—and with each of these steps forward in an evolutionary sense, our senses are literally expanding, so we have a deeper capacity to access information in all the different dimensions of our being.

Probably the best example of Relativistic thinking in relation to time is, of course, Einstein's *Theory of Relativity*, where he figured out that, 'okay, if we go travelling through space, then that person who's travelling through space is going to experience time differently than me here', and so we're branching out into what is still on a level, flat playing field—so there's still not a lot of dimensional depth there—but this idea that

someone else can be experiencing time differently than I am. It's this connecting of the dots between different human experiences which is blossoming at this time in history, and we're able to think about, for example, other religious beliefs as being somehow connected to our religious beliefs and having some similarity or similar underlying concepts, and maybe it's just the same thing, but it's being experienced from a different human perspective. We also have this capacity to experience, internally, what it's like to put ourselves in someone else's shoes and conceptualise their different perspective on the world. That's how I see time changing most immediately.

Michael Garfield: So do you think then that the idea of a future in a networked society is really even useful? I mean, I know that you guys talk about and you quote the excellent William Gibson quote that "the future is already here, it's just distributed unevenly", and so when I think about Silicon Valley people talking about the future, the idea that there is a singular future or that it's arriving at the same time for everyone, it seems a bit, like, staid.

Steve: Yes, it's very old school. The simple fact is that because humanity is spread across this spectrum of consciousness, we're not all at the same place; we're not all experiencing reality in the same way through the same worldview. That's been a very broadly accepted perspective in the past—that fundamentally, when we start talking about human consciousness and human nature, we're all the same; we're all going to respond the same to various things—but now we're teasing that out, and this is only really coming due to developmental psychology, which itself is really poking into Second Tier consciousness. It's this capacity to start to perceive different dimensions of consciousness, and the fullness of understanding of that is not really evident in this most immediate paradigm shift from Modern to Postmodern or Relativistic. But what we can do is we can look at these kinds of models and we can see the diversity in them, so rather than seeing the multi-dimensionality at Layer 6 or Green, Relativistic, we're seeing the diversity so we can get this idea, just as Einstein did, that there's diversity of experience here, it's not just all the one experience; and everybody has their own 'cosmic address', as Ken Wilbur would say, and they perceive reality from that address.

So to answer your question: yes, there are multiple nows, not just multiple futures or pasts. There are multiple nows and everybody is experiencing their own now in a different way through their own window of consciousness. There are, of course, even in the Modern Scientific-Industrial thinking, multiple possible futures, but now we can start to ponder the fact that, okay, if everybody on the planet is experiencing now in a different way, then there's got to be multiple actual futures, taking that same perspective.

Nyck: It's a fascinating subject.

Michael Garfield: So isn't that kind of a problem? It seems like it's kind of important that we sort of agree on a direction, don't you think? Or is that hopelessly naive?

Steve: We can agree if we are coming from the same values system with the same worldview, because we have that commonality of perspective of worldview. We're not going to get absolute agreement between different worldviews because the basic framework for making sense of reality is fundamentally different. We can come to an understanding where we understand each other, particularly if we have a fuller awareness of the differences in worldviews or values systems, but this idea that we all need to agree is an extremely strong theme in the emerging paradigm.

Nyck: In Green.

Steve: It's everywhere, even to the point of it starting to displace science—and there have been scientific papers written on that. I discovered one the other day written about this very subject, that the issue of consensus is creeping into science and being given a status in the same way that material evidence would have been given status 10 or 20 years ago.

Michael Garfield: Oh Jeez.

Steve: Yes, and that is an issue; it's a confounding issue for science. It's a huge issue and perhaps most prominent in the global warming discussion where people roll out this statistic of "94 percent of scientists agree". That's not data. It's not hard data—it's social science, not hard science—but it is a very important theme and it's good that you touched on it because people are feeling this. Part of the dynamic is that we're moving from an individual way into a communal way of being human and every communal way, now and in the past, has been all about conforming and learning how to be together: 'how do we cope together in the face of all this change?' Well, the first thing is we've got to agree at some level, so, yes, it's a very important issue.

Nyck: Amazing. You talk, Michael, quoting you here, about “the powerful new paradigm in evolution emerging from the interference pattern”. I know it's not entirely the same thing, but it occurred to me as Steve was talking there that you have an interesting perspective on that interference pattern of research in mathematics, evolutionary biology, computer science, developmental psychology, paleoanthropology and the origins of life. Can you speak a little bit to that? Because that seems to be, to me anyway, some part of the equation that we're talking about here, that actually the

interference pattern itself is much stronger than any direct, obvious, one direction that we can go in.

Michael Garfield: Yes, much like Steve was just saying, it's foolish, I guess, for us to think that we're all going ... You know, if we start to think of the social body—and again, I really want to lean on this this argument that for as long as we've been humans, I think that the emerging myth here, the emerging network sort of dream myth, is that we have always been collective and tribal and networked. To look at it in that way, to look at the history of humanity—not so much the history as individuals, but the history of communities, and communities that extend and beyond our current understanding of human—we have to, in order to live in a networked civilisation, adopt adaptive stories that include technology and what we have called 'nature' as not 'other than'. We've cloistered ourselves into these membranes.

At any rate, to see it in this way, to open the boundaries of our humanity to participate in and include in ourselves what Darwin called "the tangled bank of symbiotic evolutionary relationships", not just with other living creatures, but with the geology and the technology on this planet, then the interference pattern ... you can see these dynamics playing within a complex cultural ecology of different minds at different points in their development holding different cultural understandings and linguistic framings as tissues or muscle systems within a vast planetary organism. And so you start looking at the ways that people on opposite sides of the political aisle are working together in spite of their apparent conflict and it's like, for example, the muscles of your legs—if one side of your leg were to win the argument, then you would fall over.

Steve: That's true.

Nyck: You need two wings to fly, so to speak.

Michael Garfield: Right, so the question becomes about how the world is disclosed by all of these different, sometimes arguing methods and perspectives—what emerges at their intersection? To me, one of the major things that I see in that is, like I was saying earlier, that we are storytelling creatures as an adaptive strategy to living together, which is itself an adaptive strategy to surviving in a complex and chaotic universe. And so the way that we see things, there's like a Mobius strip here, where if you tug on your understanding of the natural world ...

Nyck: He's disappeared again. If you can hear us, Michael, we're trying to get you back. We're on *Skype* here, folks, and talking to Michael Garfield in Santa Fe, New Mexico. I think we've got you back.

Michael Garfield: Yes.

Steve: We lost you there for a second.

Nyck: You are here on *BayFM* on *Future Sense*, and we've got Michael back for the last few minutes. Let's see if we can finish that thought.

Steve: Here we are, and there's nothing more important at this time when we're going through this global paradigm shift as connection and the need for connection, and that's being demonstrated to us because it keeps dropping out during our call here.

Nyck: And thanks for your texts, folks. "Intriguing show", says Melody. Thanks very much.

So let's finish that. You were talking about interference patterning. I don't know exactly where we lost you, but perhaps you can pick it up.

Michael Garfield: Oh, gosh. I think what it all boils down to is that looking at all of these different fields, trying to find a way to bring them together into a single understanding, what it brings me to is that if you push far enough in your enquiry into what we think of as the natural world, then you end up having to address the issue of psychology: who is asking the question? But if you push far enough into a study of the mind and the way that we come up with models of our world, then you end up with questions about how it is that we came to this point—the contexts, the evolutionary environment that we have adapted to—and so really, I think that the new paradigm I see emerging in the evolutionary sciences is beyond the evolutionary psychology thing and into not just, 'oh, this is how men and women are, and this is why social media has learnt how to capitalise on your attention' and all this stuff, it's a step further. It's about the limits of the knowable and our relationship to mystery, like what it is to call something random, or to say it's not—that it has a pattern to it. This all sounds very vague.

Steve: No, I think you what you're saying is very important because it's about understanding our own limitations, and by knowing what we can't know, or more specifically what we don't know, then it provides us an opportunity to expand our ways of knowing, I think, and allows us to have deeper conversations around that. The worst place that we can be is thinking that we know everything—and there's a bit of that going on around the world at the moment where people are totally convinced they know it

all—the science is in and there's no questions to be asked. That's the most dangerous place that we can be from an evolutionary, adaptation kind of perspective, right?

Michael Garfield: Yes, and the second most dangerous place is thinking that we CAN know everything.

Steve: Yes.

Michael Garfield: Which is total ignorance. We've known from Gödel's *Incompleteness Theorems* for nearly a century that that's not what we're doing here. There was more research recently on unsolvable mathematical problems, and I think it changes the flavour of discovery and scientific enquiry when we accept that we're not going to figure it all out, and that even if we invent a machine that can figure out things that we can't understand, that we're back to a theological question: how do we know that we can trust what the machine is telling us? How do we even recognise if this planet is a single, giant, intelligent superorganism? If *Google* became conscious, how could we even recognise it?

This question of our relationship to the transcendence, I think, is really where we are ultimately, and I think that in another few decades we're going to have a very different attitude in the sciences and in the humanities with respect to transcendental mystery, and what is and is not possible with the human project. I think that kind of humbling could not come soon enough.

Steve: Yes and another big issue here, too, is this idea that we're all alone here, that we are the only example of consciousness that's evolving and there's no-one else out there. That's obviously something that's going to shift in the future and I think it's a big limitation on human nature, to be still in this place where we think that we're the only consciousness that exists in the entire Universe and therefore we've got to figure it all out ourselves.

Michael Garfield: Oh, yeah, and then, of course, that means that everything that we see is just ripe for our exploitation, which is nonsense. I would love to see the end of the 21st century be one in which we have a Planetary Congress where humans are represented and dolphins are represented and the 'wood wide web' of mycorrhizal relationships has a voice. I don't know what it takes for us to get there, but I think it starts with us accepting that all of our models by themselves are just sophisticated stories that have adapted to a particular psychological and social context, you know?

Steve: Yes, absolutely. We have to wind up because we're getting short on time.

Nyck: Yes, that's great, Michael. It's a lovely little summary there. We really liked that.

Steve: Yes. I was just going to throw in at the end here, that looking at the time spans in our past, of the evolution of worldviews in these major transformations that happened as we moved to a new layer of consciousness, or added a new layer of consciousness I should say, the time spans of those various paradigms getting shorter and shorter and shorter implies that what we're moving into now—this 6th layer, the Relativistic way of being human—is most likely going to be the shortest-lived paradigm so far; and in terms of the dominance of that particular way of being human at a global level, it may only last a couple of decades. Then, of course, immediately following that, we've got this massive quantum leap in human consciousness, which has shown up in the research and which a few pathfinders have completed already here in real life, and so from that perspective, what we're moving into right now is really the last blast of the rational mind's dominance of our human nature. It's inevitably going to lead to an overload—a place where there's just so much information available to us that we can't compute and make sense of it with a rational mind, which is really the evolutionary tension which is going to flick us into this quantum leap that's coming very, very soon, actually.

Michael Garfield: Although, of course the notion of linear time here is itself suspect.

Steve: Well, it's also collapsing, exactly. Yes, I agree.

Nyck: Michael Garfield, we will have to leave it there and I suspect we'll probably come back and talk to you another time in the future. Paleontologist, futurist, and host and producer of *Future Fossils* podcast. Just looking through my notes again here, he's currently also, in the day—he's got a day job—Communication Strategist for the *Santa Fe Institute*, which we didn't talk about, but it is the world's pre-eminent complex systems science research organisation. Thanks so much, Michael, for joining us.

Steve: Yes, it's been a wonderfully rich conversation. Thank you so much. We'll talk to you again.

Michael Garfield: Thank you both. Thanks for putting up with the line issues.

Steve: No worries. Talk to you soon.

Nyck: We're in the last few minutes here on *Future Sense* for this morning with Steve McDonald and Nyck Jeanes, and our special guest before, Michael Garfield. I thought that was fascinating and opens up more questions than we answered. Hopefully those of you interested in this stuff got something from that. And thanks for all your texts. We've mentioned quite a number of them. There's a few texts here we won't get to this morning, but I appreciate all those texts.

A couple of other things we want to just mention before we leave this morning. Steve, you've got a bit of information there—economic information, planetary economics.

Steve: Yes, I just wanted to mention that something on our radar is economic disruption next month, May. This is showing up, particularly in Martin Armstrong's algorithm, as a liquidity crisis and there and many, many different indicators that have cropped up over the last months and years that this might be on the cards. I had a chat over the weekend to my futurist friend, Benjamin Butler, who comes from a finance background, and he was also in line with this prediction and thinking that we're up for a liquidity crisis. There have been a few issues contributing to it. One of them is the changes in the quantitative easing situation where they kind of dropped that strategy; problems with government bonds, not just in the US, but internationally as well; and Benjamin was telling me that the German government is now issuing bonds that require the acquirer of the bond to pay the government rather than getting paid interest on the bond, which is a bit of a mind flip, but that's happening. There have been numerous strategic issues that have arisen for investors over the last year or more where people have been shifting their money out of things like government bonds and into different investments, and as part of that, money has been getting locked up. One specific example is in Turkey, where the government there has said people who had money invested in Turkey couldn't have it access to it, and so that's an issue. And it's one of many, many issues.

Again, a complex situation, multiple issues coming together to create interference patterns, as you were talking about before, Nyck, and the outcome looks like it may well be a major liquidity crisis during May, meaning simply that people can't get access to their money when they want it—and we're talking about large-scale investment specifically. So that's something to keep in mind.

And parallel to all of that developing, the crypto market has woken up again. It's been a long, long hibernation over winter, which has lasted, gosh, a year or more for the crypto market where we had this massive slide last year which really bottomed out in December. Then we've had a slow awakening over the last month or so and it's starting to fire up now, which is very, very interesting. It's going to be wonderful and amazing to watch the interaction between the mainstream market situation and the crypto market situation and what unfolds in May and how they play off against each other.

Nyck: Very interesting. A couple of other things that have been on our radar. Just to mention quickly that John Pilger, the great Australian/British journalist who's gone up against forces of governments, including our own, over many, many years as a documentary filmmaker and a journalist—John Pilger is in Byron, presented by the *Ngara Institute* on Wednesday night. You're going Steve, aren't you?

Steve: Yes, I'm going to go. It should be very interesting.

Nyck: And there may be some tickets left. You can go to the *Ngara Institute* website for those tickets.

We have also been watching a little bit about 5G. On my other show, on *North Coast Positive* on Fridays, I've talked with some local representatives who are up against 5G locally, but we've been having a bit of a look at that and there is some movement around 5G in the world. The Belgian government has just announced that Brussels is halting its 5G plans due to health effects. A statement was made by Celine Fremault, Minister of the Government of the Brussels-Capital Region, responsible for Housing, Quality of Life, Environment and Energy and the like, and they are halting their 5G rollout in that country to have a look at the health effect. Meanwhile, I think it's Korea which is going the other direction.

Steve: It looks like South Korea is going to be the first large-scale rollout, so unfortunately, they look like being the guinea pigs, so if there is going to be any health impact, we'll start to see that, quite possibly there.

Nyck: And you came across—and I'm familiar with this chap—Sasha Stone, who I think still lives in Bali. He's actually just put out very recently, about two weeks ago, a *YouTube* video called *5G Apocalypse, the Extinction Event*. It's already had nearly a quarter of a million views. You might want to check that out on *YouTube*. It's a one-and-a-half-hour doco, it's quite long. I've only watched a little bit of it so far [*Editor's note: the original version was deleted from YouTube. See: https://www.youtube.com/watch?v=EKhG9seiAlU, available as at July, 2021*]

Steve: I haven't watched it at all and I just want to make the point that we're not necessarily endorsing anything that's in this video, so we're not saying that it's good or bad or real or unreal.

Nyck: Absolutely. And thanks again for your texts. Someone has just written: "Hi Nyck and Steve, Bring it on. Missed all but the last few lines of that interview so I hope I get to

listen to it later on. Looking forward to more disruption and change." You can of course, check out all of our shows, which are edited up with all the sponsorships and music and other stuff edited out, and that podcast can be found @futuresenseshow on *Twitter*.

Steve: And www.futuresense.it is our website with all the links to the different places you can get the podcast.

Nyck: Fantastic. Very good. That's it for the show today. Thanks for joining us here and we will be back of course, next Monday morning, here on *BayFM*. Thanks, Steve.

Steve: It's been a pleasure.

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