SCIENCE OF THE NOOSPHERE

Gregory Stock

with

David Sloan Wilson

David Sloan Wilson: Well, Gregory, this series of conversations is based on the concept of the noosphere, developed by Pierre Teilhard de Chardin. And that concept is very close to your book, Metaman, which was published in 1993. And in chatting before this recorded interview, I learned that you didn't really know much about Teilhard when you started Metaman. You discovered him part way through. So my first question for you is how you came up with the concept of this global, technologically assisted, superorganism that you call Metaman. So a little bit about you, your background, and how you arrived basically converged on this concept of a planetary thinking envelope, which Teilhard called the noosphere, and you call Metaman.

Gregory Stock: David, it's a pleasure to chat with you, and I love the topic. I'll get into how I came to my understanding of it, but it was amazing to me. I was well along in my development and rendering of this conceptual framework that I'll describe in a moment, but very similar to what Teilhard de Chardin was thinking about. I think somebody referred me to him, and I read it. And I was going, "Oh, my God. How could somebody see that in the 1920s, I guess it was?" And I vaguely remember, he was in China at that time. And I was thinking, the things that felt, to me, very prescient back in, I guess, the 1960s, when I was first thinking about this, and now seems almost obvious. The global brain, the global mind, all of these frameworks that are quite dispersed. But to have seen it at that time was extraordinarily impressive.

And then he, of course, articulated it largely in a theological framework. And I had a very scientific one to present it in, but very similar views. And I guess, I came to it through…my background is that I have a PhD in biophysics. I looked at molecular biology. I was at John's Hopkins University where I got my doctorate. And since then I've gone into healthcare. I got an MBA from Harvard Business School. I've been very fascinated by economics and how that all comes together, and have dealt in healthcare and such. So it's been a journey that has had a number of different dimensions to it. And I think it's partially been informed by that larger view that I got as a graduate student, basically, when I was at Johns Hopkins, and was thinking in terms of macro evolution.

To me, it was the framework of seeing the level of complexity that occurs in the natural world, and how at one level, they're just biochemicals. And then those come together to form the most primitive of life, prokaryotic life, which is just basically a bag of biochemicals. And that same biochemistry exists today, of course. But then those prokaryotic organisms then come together in a synergistic fashion to form eukaryotic cells, which are of course, maybe a million times the volume and have prokaryotic origins in the mitochondria and the nucleus, and such. And then clearly, the eukaryotes, single cell eukaryotes, come together to form multicellular organisms, the diversity of metazoan life around us. And it became obvious to me where I began to think of it. Well, goodness, what's happening today? We're coming together in the same way that single celled eukaryotic organisms have come together.

And it forms a new, higher level organism, which I dubbed Metaman at the time, because humans represented the transitional catalyst that had allowed that coming together to occur. And at first, I was thinking about it, but it was this epiphany. And I began to realize that this is not a metaphor, that this is reality, and that this is really a superorganism. And I was very affected. I started looking at the literature on superorganisms, and I was very impacted by E.O. Wilson's work on ants and such, and termite colonies. And I began to explore it in more depth about the idea of, well, look, how does this

communication occur between individuals cells? What's the bandwidth of that? What are the limitations of it? And then how that advances when you get actual organisms that are connected together in ant and termite colonies. And then look at the kind of bandwidths that we have and the relaxation of the limitations for those connections, and how powerful that really is.

And I began to explore that in depth. And I guess, it was over a period of quite a few years where I really worked out what I saw as the biology and what were the analogs to the nervous system, and the external envelope of that meta organism and such. And only at that point did I begin to really come across Teilhard's work as I was not terribly familiar with the broader literature of this kind of thinking.

DSW: Teilhard had been largely forgotten by then. During his lifetime, he was a very distinguished scientist, in addition to a Jesuit priest. But afterwards, basically with the onset of the modern synthesis, evolution took this big turn towards genetic evolution, Mendelian genetics and all that. And it became very reductionistic. Teilhard's vision of human cultural evolution essentially just was not part of that. So he remained read by spiritual thinkers, I mean, spiritually oriented people, but it's not at all surprising that you didn't encounter him, coming at it from a scientific perspective. And part of this project is actually just to reintroduce his thinking to a modern scientific audience. That's part of this project. But what was the reaction to Metaman? How was it received?

GS: Well, when it was published a number of years later, at that time, I had written manuscripts, but I didn't have any clue as to how to publish anything, or hadn't really even thought about it in a deeper way. I was thinking of putting together some papers and such. So it was something that was a back project for me. And I ended up writing a book that was very successful, called The Book of Questions, which was, again, just a little…

DSW: Now Gregory, I want to pause you on that, because I've done a little due diligence on your life and work. And I'm fascinated by The Book of Questions, so let's not race through that. Tell me more about The Book of Questions. I mean, that's quite an achievement, to have come up with an idea that became so successful. Let's spend just a minute or two on that.

GS: Yeah. Well, we can come back to that because it really is occupying all of my energies at this point, in a way that is very much informed by both the work of Teilhard and my work with Metaman. But it's been a journey there, and I didn't realize those connections at the time. I had been through a divorce. I was kind of lonely. I was at a retreat with some friends up in Oregon, and at a place called Breitenbush. That was the name of it. It was up in the mountains, outside of Portland. And I just was in this conversation. We all have had them, where five or six of us went until six in the morning or so, talking about life, about everything, about nothing. One of these very loose, very playful, very intellectual, very enjoyable conversations.

The next morning, I stepped back and I thought, oh, that was so wonderful. Why has it been a decade since I've had a conversation like that? I thought, in college, I would have those interactions all the time. And now it's been ages. And I struggled. I thought, there must be some way to make that happen more often. What was it? And I started looking at it, and came up with the idea that I batted around with a close friend of mine there, which was, could you use questions to lubricate that kind of interaction, to catalyze it? And I came up with a few questions at the time, mostly associated with relationships, connection, what our values are, and tried them out. And they were very effective at opening up conversation.

So I spent a year after that, coming up with questions, going out and talking to people, and posing them. I think one of the earliest questions was, you're sitting at a cafe and you look over a few tables, and you see somebody, and you know that if you go over there, you're going to fall totally in love with that person. It'll be the stuff of fairy tales. It'll be fully reciprocated. And you also know that in six months, they're going to step off a curb, get hit by a transit bus and killed. And you can't change that. But if you

go over, you're going to forget what's going to happen, but that's a trajectory you'll be headed down. So do you go over and have that experience, or do you walk away?

It's that kind of open-ended question that really, very quickly, you're talking about whether you view love as an experience, whether you view it as a investment in your future, whether you protect yourself from pain, that kind of a thing. And a whole bunch of other ones related to our mortality, related to illness, related to all sorts of values. So I self-published that with another friend who knew a little bit about publishing. It sold quite a few copies, maybe 15,000 or so. And then I was at Harvard, at business school, which is another step in my journey. I had been developing early networking software. I left academics a few years before that. This was in, I guess, the late '70s, and went and developed the early software associated with ATM and financial networks at Transaction Technology, which was a development arm of CitiCorp. Completely different.

So I ended up looking at those kinds of questions, and I published it. I took it to Workman Press, and it became an international bestseller. No one had just posed questions and not given any answers, and done it in a very neutral, open-ended way. I guess, there were several books in that series that sold about five million copies and were translated into 25 languages. And it was quite a phenomenon. I did about 1,000 radio and television shows and such, but it was always like a guilty pleasure. It was like, oh, I do these serious things. I'm a scientist. This is just a little hobby of mine. And then it was on the success of that, that enabled me very easily to publish Metaman, because that had been such a success.

DSW: Yeah. Yeah. Somebody wanted to publish your next book at that point.

GS: Yeah. So then I published Metaman, which was very well received, but not a bestseller by any means, but very gratifying because it had a significant impact on people that I admired, who read it and really were moved by that, by the detailed presentation of human society as a biological organism, and placing it in the larger context of meta evolution, which was something that I was very engaged with at that time. And then I went on to write another book, that was Redesigning Humans. I was interested in, well, what does this mean for us to be the belly of this entity, this meta structure, this superorganism? How is it, experientially? And what does it mean for the future of humanity?

So one of the areas there that was most interesting to me was our own biology, where clearly, through the vision of this meta creature, I mean, it's not our individual vision, we were able to begin to unravel the details of the workings of life, and begin to see our place in the universe, in the trajectory of life. I mean, this is all a collective phenomena that we're looking at. And as we begin to be able to understand that, we begin to be able to manipulate it. So we're at the very early stages of beginning to tinker and re-engineer life itself. And of course, it's turning this technology back on our own selves that has such extraordinary implications for the human as a species, as a biological entity. So that was what that book was about, basically.

DSW: So Gregory, how does your Metaman work relate back to your Book of Questions?

GS: I guess what happened is I started to realize that in terms of us, in terms of humans, I started to look back at my career. I went and accepted a faculty position at Mount Sinai, at the school of medicine, at the Icahn School of Medicine. And very much wedded to the idea of the vision of healthcare, which is that we're going to collect this enormous amount of data about people. This was building off of all the mobile health devices so that you can take steps. I was doing continuous glucose monitoring, monitoring brain function, doing all of these things, hooked up with batteries and wire, and collecting loads of data. And then with that kind of a big data profile, including your gut biome and your various kinds of genetic, full analytics on genetics and everything, the idea being that we're going to collect all this data, and then we're going to really, deeply analyze it, which we can do relatively easy. We're in early stages of doing that.

DSW: Big data. Big, big data.

GS: Yeah. You got it, David. So the thesis is, you're going to take all this data, gather it. You're going to analyze it really deeply. And then you're going to feed back insights that are going to be very valuable in preventing disease, in maintaining wellness and health. And in fact, the wrinkle of it for me was that I was interested in wellness and precision wellness, as opposed to precision medicine. But then I began to realize that as I got into it deeply, and I set up a whole series of fireside chats, dinner parties with various distinguished people in the healthcare arena, to try to engineer a new healthcare medicine. And I began to realize that that was fantasy, in that this idea that we're going to be able to conclude, get insights that we didn't already know, and then act upon them in order to somehow deepen our sense of wellbeing in our lives, I began to realize that that was wrong because, actually, we know what's wrong with ourselves, often, in terms of the health issues.

We're socially isolated, we don't get exercise, we're not eating well. So it's not like you're going to do all of this big data analytics, and then come back and say, "My God, you are morbidly obese and you smoke. I never imagined that. This is such a shock. Let me see the printout." So it's like the cartoon of the person who's looking for his keys under the street lamp because that's where it's light, and he lost them in the bushes.

DSW: Gregory, let me take my turn here for a little bit, because it's so interesting. What's interesting about that is that Metaman, of course, is very pro technology, and I'm sure that that was alienating for about as many people as it was alluring. So your stance on technology is interesting, especially given what you just said, because what you just said is that this high tech approach to the quantified self, that we just measure everything about us. And then we've learned something that we didn't know before. That particular form of technology was maybe not so much. So it seems as if you discovered for yourself that at least certain forms of technology are not the solution to this. Speak a little bit about your stance towards technology in the formation of Metaman or the noosphere, or basically a global superorganism. What's the downside, the two-edged sword of technology?

GS: Well, the formation of a superorganism doesn't speak very loudly about what the impact on our lives and our experience of life is going to be. It's like, if you look at the human body and you can, say, you look at a red blood cell or some other cellular construct. Is it happy? Is it pleased with what it's doing in the body? Does it even have a sense of its larger role within the superorganism? It's certainly protected in a way. And your homeostatic guardrails are established so that, by and large, a red blood cell is doing what it should be doing in terms of the larger functioning. But I think we're kind of the same way, in that there are aspects of technology that don't really contribute to our sense of wellbeing, other ones that really do. But certainly, technology's absolutely central to the formation of this global superorganism. Couldn't exist without it.

DSW: Absolutely. 100% true. I don't think anyone can disagree with that. I mean, it cannot happen without technology. And of course, it needs just the right kind of technology. As with all adaptations, there's a few things that work and millions of things that don't work. So we need the right kind of technology, but it does require technology. Teilhard appreciated that, and I don't see how anyone could argue against it. So there's something we could all agree upon. This cannot happen without technology, without some kind of technology.

GS: Right. And I don't think anybody would argue with that. What they would probably argue with, is it good or bad? Is it good for us? Is it something desirable? And to me, I looked at it as a field biologist would, when looking at an organism. I mean, we're not making judgment of whether, oh, is the termite a good organism or not? You're fascinated by its workings in a sense. So to me, in looking at Metaman, as I called it then, there have been other nomenclatures and references to it in terms of what Teilhard de Chardin had referred to it, and the noosphere or the global brain, the global mind. All of these sorts of things. But to me, it's deeper because it's not just the mentality and the information process that's going on, but there are all sorts of deeper things that are happening.

I have this vision of, it's extracting resources from the soil and devouring them, and distributing them. And there are all sorts of redundancies in its systems that are evolving and being created. It's very much an emergent phenomenon, and very much one that is refining and amplifying on its growth as it continues. And we can get into some of the mechanisms around that, which were developed in Metaman, and were fascinating to me because as you begin to look at it in that context, you see how it has solved and transcended some of the limitations that have been encountered by lower level entities. Meaning multicellular organisms, which have to have a membrane to protect their homeostasis and things of that sort.

So to me, it was a change of, not a doubting that this thing is occurring, that it's very robust, that it's very powerful. And in fact, I think it is something that is not fragile in any way. It is a transition that is setting the foundation for life, millions and millions of years, or tens of millions of years into the future. This is one of the fundamental transitions in the history of life. Now its impact on us is another story, and that's where I was going with the other information about human health, wellbeing, and then about The Book of Questions as well.

DSW: So often this topic of the global governance is nested within a macro evolutionary story, a macro revolutionary story. You use the word macro revolution yourself, I believe. Teilhard did. I mean, it's all about the origin of life and the transitions, and multicellularity, and so on. And what's lacking very often is a micro evolutionary story, and a micro evolutionary story that might link to the macro evolutionary story. Here's where my expertise comes in, because I think whenever you look at anything in nature or in human life that counts as cooperative or good governance, or prosocial, or basically oriented towards others or the system within which you reside, then those traits are in a Darwinian contest with other traits that we regard as disruptive and self-serving. It's the eternal contest between altruism and selfishness.

Everything we value is vulnerable to disruptive, lower level, predatory and competitive behaviors. And when you go back to the macro revolutionary story, and you ask such questions as the origin of life, the first cells, multicellularity and all of these things, you find that the only reason that these transitions occurred was because they solved that problem with various means of social control, various means of social control that prevented these more disruptive, self-serving agents from taking over. Cancer is the best example of that because multicellular organisms, that's the paradigmatic organism that we're using to compare to some kind of global organism. But even multicellular organisms are vulnerable to cancers, of course. And cancers are nothing other than mutant cells that manage to proliferate at the expense of the solid citizen cells, the cooperative cells within the body. They're cheating cells, and they have the local advantage.

And multicellularity could not exist if there had not evolved between individual selection, elaborate mechanisms to prevent cancer. Cancer prevention mechanisms. And Athena Aktipis, who is one of the people in this series, has a book called The Cheating Cell, which is all about cancer from this perspective. So it follows that if we look now at any cooperative unit, any cooperative unit in nature or in human life, the reason it exists is because it evolved those protections. Human morality is a good example. I mean, everything that we associate with human moral psychology is basically like a big immune system that protects against self-serving, disruptive behaviors. And you can look at any scale of society, any scale of human society, this is one of the things I do.

Let me take it in two scales. One is the scale of small groups. So any small group of individuals who are trying to get something done, they have to cooperate. And when you actually study them, you find that they actually vary in how well they function, from the best of the worst. We know that. We don't need a scientist to tell us that. We have our own experience. And when you look at the ones that work super well, what you find is that they have good governance. And the political scientist, Elinor Ostrom, who won the Nobel prize in 2009, is the one who worked out what she called these core design principles.

But the way that they could be understood is governance. It's like cancer prevention. So this group has the appropriate structure.

GS: But aren't you taking good governance, which a lot of people have very different views of what good governance should be? I mean, you could say totalitarian society. Is that good governance? It could be, under certain views, and there's a certain competition that's going on. But essentially, I would say good governance in the sense you're using it just means governance that's capable of maintaining the collaborative activity, and reducing the dissociative activity that would occur with larger and larger entities. So by definition, it's that there's government that is capable of maintaining a large, a higher level organization. And it has nothing to do with whether the individuals within that framework are satisfied or comfortable with that, or whatever. It's just functional government, essentially. Am I correct there, and that's what you mean? That in the sense of, it works, in other words, it can actually handle that level of association and synergistic interaction of larger numbers of parts?

DSW: Yeah. I'd have to say yes and no, Gregory. And I want to keep this compact, but by all means. Many groups, the purpose of the group is pretty plain to see. It's their mission statement. If it's a corporation, if it's a shareholder value model, then it's profit. If it's a non-profit, it's their mission. If it's a group trying to build a playground, it's the playground. If it's a school, it's education. I mean, most groups have purposes. They're functionally organized, or at least they want to be. And then there's the question, if it's a common pool resource group, which is what Elinor Ostrom studied, it's a forest, it's a fishery. It's the groundwater. These are collective action problems, basically, where there's some goal that actually everyone is aware of the goal. And it's a question of how well it is achieved.

So that's the sense in which when you ask that question, there's an answer as to how well it's achieved, these governance rules, basically. Let me list the rules so as just to make it a little less abstract. Basically what she said, the groups that work well, first of all, they have a strong sense of identity and purpose. So everyone knows that they're in a group and they know who the member is, and they know what the group is about. I mean, most groups are socially constructed. So if there's not a boundary, a conceptual boundary to the group, then that group is unlikely to work well. And number two, proportional cost and benefits. If some people are doing all the work and other people are getting the benefits, that's not likely to last very long.

Number three decision making. If some people are calling the shots and other people are just being bossed around, that's unlikely to work very well. In the first place, it's a recipe for unfairness. And in the second place, you're not making use of everyone's wisdom. Monitoring agreed upon behaviors. If we can't tell you're doing what you're supposed to do, well, how could it possibly work? Graduated sanctions. If you're misbehaving, well, something got to be done about it. It doesn't have to start out mean, but you have to be able to escalate. Conflict resolution. Conflicts will occur. If you don't have some way to resolve conflict, well, forget about it. And so on. So these are pretty commonsensical. But if you don't have them, then that group's not going to work well. So here we have an anatomy and a physiology that we can understand at the level of small groups. Forget about the whole earth for the moment. Just focus on these small groups that we participate in everyday, and we see that they could actually vary.

Now here's where, I think, a small departure from what you said, Gregory, because when these groups work well, and you can see that they have equity and moral equality built into them, right? So when these groups work well, they're enormously satisfying for the members of their group. It's not the case that the group worked well independently of the welfare of the individuals. There's quite a strong alignment between the group working well and the welfare of the individuals within the groups, as you would hope.

GS: That doesn't sync with my understanding of group superorganism phenomena, in that if you were to look at insect colonies, for example, you would see many where you would look at it, and from our point

of view, you would say, "Well, no, there isn't any equity there." Just like we shed certain cells that have their function. And you could say, from our perspective, "Oh, no, they're not being used fairly in some way." And you see that in all sorts of communities. In other words, this value-laden, this overlay of values and fairness, and concepts like this, to me, they don't have much of a place in my thinking about, whether something is functional and it works well. I mean, it seems to me, the proof is in the pudding. If there's an organizational structure, whether it's fair or not, it is very powerful and is dominant, and is able to spread. It's obviously a good in the sense that a functional, a powerful, a competitive system of organization.

DSW: Well, you're right.

GS: And that's one of the clearest issues today, is that there's an attraction for the totalitarian kinds of organizational structures that are well represented by what's going on in China today, and the use of powerful technologies for surveillance, for organization, for control, versus the chaotic situation in the West, that many would say is spinning out of control because of the advent of communications technologies that is creating mob-like aggregations of people that are communicating at levels we're relatively unadapted for, as biological creatures that are components, sub components of this larger collective. So I don't know where these things go. And that's what I meant by, I'm just looking at them like a botanist. Look at new plants or whatever that they find.

DSW: Gregory, so must all of us when we look at history. We must look at them from two very different perspectives. One is as the naturalist, basically, as the botanist is, as you said. Also as an ethicist as to what kind of society we want to work towards. If it turns out that the most successful society at the group level is just like some kind of cyborg, or maybe treats individuals as skin cells and just sloughs them off whenever they want, a slave society, perhaps, if that's what works well, that's pretty scary from a moral perspective, when what we regard as moral is in fact not what is evolving at these levels. And if you look at history, what you find is actually everything about this is complex. But you certainly find examples of societies, which would be nightmare societies from our perspective, and which of course, since they exist in history, they succeeded for a period.

My favorite example is Sparta. One of the conversations in this series is with a Greek scholar named Josiah Ober, Josh Ober, who's just a wonderful scholar of ancient Greece. And if you look at Sparta, first of all, you find democracy at a certain scale. It was a military democracy, but they were just predatory. And everything else, including the people that were providing food for them, they were just like a great white shark or something. They were very democratic within themselves. But as far as everything else was concerned, they were predators, social predators. And even Athenian democracy was…

GS: Yeah. But even Athens…

DSW: Slaves. Yeah, slaves. And yet it's so interesting that within a certain moral circle, within the defined group, right? The defined group, the citizen, okay? And then you look at what's making that work well, then these democratic principles actually are what makes the group work well. So there's some sense in this very complex moral terrain, there's some sense in that what we value morally, which many of us value morally, is in fact what works well.

GS: Yeah. I agree with that at some level. But I would posit that our morality and our sense of ethics is very much informed by our biology. It's a primate biological sense. If you were to look at insect ethics, for example, as E.O. Wilson points out, who we mentioned before, there would be a very different sense of what right and wrong would be. And my suspicion is that as we move into a cyber realm, and in fact, potentially…I mean, to me, the biggest issue of our era is not how we're going to use genetic engineering or all of the ideas about exactly how our human interaction with technology will be, at an individual level. But it's whether in fact, we are at a watershed moment in which the very substance of life is going to shift, that basically the evolutionary progression that is occurring within the non-organic realm within

silicon and its ilk is going to continue and proceed, and create cognitive, conscious living beings who are not biological.

And there's been a lot of thinking about transhumanism, posthumanism, the idea of uploading human consciousness in various ways, into non-biological inorganic realms. And what the interface and the relationship between biology and non-biology is going to be. And then if technology moves us to an entirely different level of potential and operational interaction, then does that mean that the ethical framework that we have is no longer appropriate for that new realm, and is unlikely to be retained, basically? Because if you can duplicate, if there's essential, functional immortality in some way, or if you can duplicate consciousness, you can back things up, you can interact at a distance in various ways that don't preserve the integrity of the separate individual beings, it changes all sorts of things. And who knows where that goes?

I was talking about the macro biological, macro evolutionary framework, simply not because it doesn't emerge out of microbiology. I mean, it's clearly our cognitive processes that have allowed the emergence of technology in ways that have reshaped and created a superorganism, and are shaping its workings. But that if you take those things and allow them to project forward, even a tiny bit, hundreds of years, not even thousands or hundreds of thousands of years, it's mind boggling to even imagine what this biology, and I say, biology in the general sense, that it might not be organic, but it is biological. It is life in the same way. And we're at this strange moment between these two levels where we can see ourselves in ways because of the shadows of the superorganism, the meta structure. And yet we can only, very dimly, perceive its workings and where it's going.

DSW: Well, that brings up something, Gregory, that often gets lost in these kinds of conversations because they're so human centered and technology centered that one wonders, whatever happened to the natural environment? Whatever happened to the rest of life on earth? Biodiversity, all of these sorts of things? Which some people value, others don't. Teilhard had this statement where he said—and here I think he was being the naturalist, he wasn't being normative about it—he said, "I can envision a time in which the only thing on earth are people and their domesticated plants and animals." Everything else just went away. And that's a horrifying thought.

And in fact, actually, that's the kind of thing, you don't want that wish to come true because ecosystem services and things like that. The natural world provides all kinds of essentials for life that we don't know about. So we have a practical reason for preserving the rest of life on earth. But what are your own thoughts on biodiversity and its importance, its value? As we move towards a global superorganism, what is the fate of everything other than ourselves, and our domesticated plants and animal?

GS: Well, I think that it's likely that we're in the midst of a massive extinction that is similar to what has happened in previous eras, and that it's mostly driven in terms of numbers of species and such. It seems to me that it's very driven because the geographical isolation, functionally, of island fauna and flora, and such, is unlikely to be maintained. And it's already being seriously impacted, and that's where you get larger numbers of species, is when they're in island arenas or in little locals in the Amazon forest or whatever. So I think that it's going to be a much weedier environment, essentially, where you get various kinds of species that are very successful and spread very broadly. And I think that, certainly, the domesticated animals and plants are ones that are thriving because of their relationship with humans and human society.

But it's very fragile too, because if they exist because of their integration into a functioning superorganism that's fairly rapidly evolving, well, if the role that they're fulfilling in that superorganism is displaced by technology in some way or another, so that it can be executed more efficiently or in other ways, then they will disappear as well. So that's a fairly dynamic—how to say? A fairly insecure arrangement there. And then the other thing is, who knows? When we start beginning to alter and change the fundamental drivers of our biology, when we can edit DNA, the way that we are rapidly

developing the capabilities of doing, then it's almost like the traditional diversity is very limited compared to the future diversity that will be possible as the guardrails on life forms and the requirements for them begin to melt away, as you begin to have merging of technology and biology, in all sorts of unfamiliar and unusual combinations.

It's terrifying in a way. And I look at it as that because we're the objects of these processes as well. It's not only that we're the observers of this, as you step back and you're the naturalist, and watching this amazing thing, this amazing transition occurring, but we are the agents of it. I mean, we're at the heart of what is occurring, which is why people feel such guilt and such concern about degrading of the natural environment, or do we have the wisdom? Is there the wisdom not to do something that will have awful consequences, where we destroy the capability of sustaining life on the planet at all? And then we're the objects of these things. We're going and doing all these tinkerings, and it reflects back on ourselves. I mean, you can see it with the pandemic, which was certainly, plausibly concocted through human research. Whether that happened or not is uncertain, but it's certainly not an unlikely possibility. And if it didn't happen in this case, it will happen in the future.

So we can create things that we do not have the capability of protecting ourselves from. We're on this treadmill where we have to explore and develop that potency, that power, ever more rapidly in order to stay ahead of the unseen consequences of the same technologies. So does that go and create a transition to a very stable structure that then moves out towards the stars or whatever? Or does it implode upon itself in a relatively short order? The answer is not clear on that yet, but certainly, it would be reassuring if we had encountered some other form of life in the universe, or some other signal of it as well, because one of the explanations for the lack of seeing any other life, or evidence of life in the universe, any clear evidence of life, despite there being many planets that are capable of sustaining life, is that life moves very rapidly when it reaches technology, through a whole series of accidents and evolutionary developments, that it very rapidly extinguishes itself before it spreads. So who knows? I don't know.

DSW:What you just said, Gregory, is that when we look at this global thing that has been created, it's already a global thing and is evolving very rapidly, then it can go right. It could be something that would deserve to be called a superorganism. It deserves to be called a benign superorganism. It's a superorganism that actually nourishes its members, rather than expending them. It could be that kind, or it could be another kind of superorganism which actually expends its members. Or it could be something that doesn't qualify as a superorganism at all. It's just a system, and it's one that's actually an unstable system. It's going to wink out of existence, as you just said.

So these are all possibilities for this global thing. And only some of them qualify as Metaman. Only some of them qualify as a superorganism in any sense of the word. And of course, ethically, we need to work towards some of these outcomes and try to prevent others. When does this come down to policy? And this is right in front of us. So this global thing is now overheating the earth, and there doesn't seem to be any efficacious thing being done about that. So speak to some of those issues.

GS: First of all, I think that the idea of issues of biodiversity or global warming, or these sorts of things are very low on the list of disrupting this robust system that I look at as a superorganism, and that I think is very robust and powerful. I think that the chances of it going awry and essentially extinguishing itself in some broader way is going to come out of the technology itself. In other words, that the biggest threat to human society is actually human activity and the technologies that we have, and don't really understand the implications of them.

And it's very clear. You can see it in a very short period of time, with the development of social media and broad communications technologies that exist today, which are—in a period of, I would say 10 to 15 years, maximum, more like 10 years—are in the process of creating an extraordinarily divisive and dysfunctional society within the United States. And that's kind of the leading edge of that, where you

have all sorts of filter bubbles and disinformation, and memetic amplifications that occur, that essentially render democracy ineffectual. Just as the electorate becomes very fragmented and it becomes almost, very difficult to achieve consensus around anything. So you have a very chaotic environment on one hand, and this has been discussed by others as well. Or you have a more stable, but equally problematic, totalitarian regime of control that's emerging within China. And these are two different realms of activity that are moving way more rapidly than any of the issues of climate change and such, that are disturbing.

I find it disheartening, the recent developments on the technological front and the communications front, how they're impacting society, in that I could see technological remediation. I look at the issues of things like global warming as being ones that are quite easily soluble. I remember looking at studies where, even if we burn all the coal, what we know of, and raise the global temperature, it's not a runaway situation. You end up with probably melted ice caps. You end up with sea level rising substantially over a period of probably 10,000 years. You end up…

DSW: So this is not to worry, Gregory? This is not to worry? A third of the human population lives on coastlines, and they're all going to have to move, all the cities are going to be under water. This is not to worry?

GS: Well, if you look at it from the meta level, okay? There have been huge impacts on human society. Take the example of the black death, which probably killed off a third of humans, and now is looked at as a faint shadow for us. I'm not saying it wouldn't be extraordinarily disruptive, but if you look at a thought experiment and say, what if sea level, were going to rise, let's say, 10 feet over the next few hundred years? Which is not unreasonable as a possibility. So as a consequence, if you look at it from the United States, that would mean that all of Florida would be underwater. So if you're living in Florida right now, and you knew that that were going to occur in, I think, actually more like three to 500 years would be a more reasonable thing, but let's say it would was a few hundred years, what would be the impact of that on your life, immediately?

It would certainly have impacts on the way we build structures and such, but buildings turn over every 50 years. Every few hundred years is a long time for buildings. I just can see this amoeba-like spreading and moving around. And it would be something that our technology could adapt to. I don't think that that would derail this human-centered endeavor of this superorganism. But those are long timeframes. Look at it, what's happened in a couple of years where you get very dysfunctional societies that very rapidly can descend into chaos. Look what happened in Lebanon, or in the Middle East.

DSW: What if the whole world became like that?

GS: Those are the things that I'm saying are threatening to the organizational structure that is very fine tuned and has a certain amount of redundancy to it. So those are the things that are likely to happen much more quickly, and be very threatening. And that's not even mentioning what occurs if you actually do develop conscious, inorganic awareness and living systems that essentially transcend biology. I mean, then they don't really care at all about the nurturing environment that supports biological life. I mean, they're actually better suited for space, for going out into the universe in some way. I mean, if you're talking about silicon, a vacuum and coldness is to be welcomed. So it's not clear to me exactly what the relationship is between human wellbeing and our future, and the wellbeing and the robustness of this superorganism.

There's something that is consoling, or that is satisfying, that is reassuring, I guess, is what I'm looking for, is that, generally, when there have been these shifts in organizational level, from prokaryotic to eukaryotic, to metazoans, to this higher level entity, the prior levels have been incorporated and supported by, and protected at the higher level, because that organizational level arises in order to create homeostasis that can support and sustain the prior levels. And I think that that's much more likely to occur. I'm very optimistic, and I love technology and such, but I've grown to imagine that life, as it

exists, 50 to a hundred years from now, might be extraordinarily satisfying for humans that are born into that environment. But ours brains may simply not be malleable enough to comfortably adjust to those changes.

Just like right now. I mean, I'm very active with technology. Like the use of social media and communications technologies by natives…I have an 18 year old daughter, and to see her on Snapchat and interacting, and everything, it's a very different kind of sensibility than what I'm comfortable with. And I realize that my positioning and what I'm comfortable with is very different than my great grandparents, who would look at today in horror, and say, hmph.

DSW: The advent of writing was like that. Well, Gregory, a good way to sum up, I think, would be to ask the question, if you were to write a second edition of Metaman, what would you change from the first edition?

GS: I think that it's the biological insights, the analysis of the organism that I call Metaman, the superorganism, and the way it has cognitive structures that are involved, both computational, human components of that, monetary components that essentially organize and distribute our activity. So the view of the biology would not change very much. The sense of communications technology and our experience with that, I am in the process of exploring much more deeply at this point, because I think that where that's leading us, and very quickly, in terms of transcending, most human activity that otherwise would be required for maintaining this structure is being displaced by the AI driven activity. I'm thinking very deeply about also, not just as an external viewer, observer of this, which is very satisfying intellectually, but I'm very caught up with, how do we maintain our quality of life within this evolutionary transition that's occurring? And how can we nudge this evolution, this transition in ways that support our wellbeing?

And that's what I'm doing. That's where we come back to The Book of Questions, where, to me, one of the biggest things that's occurring today is our social isolation and our lack of understanding of one another, which creates this fragmented society and a level of potential conflict that is very negative for us. I think we need to come back and find ways to reengage, to make these more humane, to feed our biology, rather than think that we're going to deny our nature as flesh and blood, as creatures, and plug into some metaverse, and that this is going to be a happy outcome for humans.

1:03:51

DSW: Oh, Gregory, I'm really glad that this is that this, as our conversation comes to a close, that it's taking this form. I want to tell you about one of our other conversations with Jim Coan and Garriy Shteynberg on this topic. Let me just tell you about this theory called social baseline theory that says this. Throughout our history as a species, individuals never lived alone. They always lived within small, and for the most part, highly cooperative groups, even when those groups were warring with other groups. So the one constant of our evolution, of our genetic evolution, has been to be a member of a highly cooperative group. What that means is that the individual mind and body has evolved to seamlessly integrate personal and social resources. When the mind and body makes its trade-off decisions, it is seamlessly integrating its individual resources with its social resources.

So when you isolate the individual and you take away the social resources, either in actuality or subjectively, then the brain and the body interpret this as an emergency situation. So the prescription is, and it's a prescription that can be a low-tech, even a no-tech prescription, although technology can assist, is to get individuals functioning in the context of highly cooperative and nurturing groups whenever possible. The small, highly cooperative group is a cell of multicellular society. That's the missing link. Modern society pretends that the individual is the fundamental unit, and then there's large scale society. It is not recognizing this cell of the small cooperative group. So there's something that we

can do right away, that will have a tremendous benefit, both for individuals and for large scale governance. That was the topic of that conversation.

GS: Oh, that sounds terrific. To me, it's very much in alignment with my thinking. Although to me, if we really want to preserve and enhance human wellbeing, protect it, essentially, it has to be very aligned with these very powerful dynamics of this evolutionary transition that's occurring. We're not going to divorce ourselves from technology. It becomes irrelevant, anything that does that. In other words, this has very powerful dynamics that are outside of our easy control. But what we can do is develop mechanisms that tie us together in larger ways and at scale, and that really bring together our humanity, our human qualities with the technologies, and allow those technologies to serve us.

And right now, we're at a version 1.0 of that, where we are really not serving our human qualities. And social media is isolating individuals. It's creating divisiveness, it's creating conflict. So the project that I'm undertaking right now is to evolve what I call the map of human identity, in a way that people respond to kinds of very deep, value oriented questions, and in smaller group structures, which are facilitated by technology. But we create intimacy and connection within small groups.

DSW: Okay.

GS: That's our biology.

DSW: Well, we…

GS: It's not within larger groups.

DSW: Yeah. Well, that's wonderful. Gregory, that's a great way to end, and that's a real convergence in our own views. So I look forward to working with you more on that.