SCIENCE OF THE NOOSPHERE

Clément Vidal

with

David Sloan Wilson

David Sloan Wilson: Okay, well welcome, Clément I'm so happy to be having this conversation with you about the Noosphere and Teilhard de Chardin.

Clément Vidal: Thank you. I'm so happy to exchange with you on this exciting topic.

DSW: Let's begin with your background. Just tell us a little bit about yourself, your kind of academic trajectory and how you became involved with the Human Energy project.

CV: Well, if we want to go into details, I actually did an A level in science. So I've been more inclined toward sciences in general. And then I started university in mathematics and I realized it was really too abstract, too technical for me. And I stopped and I went to philosophy, a kind of relative term, and I was very happy about this choice and actually this interest for mathematics and science stayed because after my bachelor in philosophy, I did an additional bachelor and master in mathematical logic. And then again, I was confronted with this very formal science and I kind of needed to breathe and I didn't see much opening into it. So I did an additional master in cognitive sciences, still in Paris, which was very exciting because we could pick many courses from many disciplines. So it was truly interdisciplinary and it was at this moment that I did a thesis about a comparison between the brain and the Internet.

So that's in 2005. And the most interesting paper that I could find on the topic actually were by Francis Heylighen, a colleague. And so I decided to go to meet him and to explore whether I could do a PhD within his group, which I eventually did. And so I explored big philosophical questions, cosmological questions such as where do we come from? Where are we going? What is good and what is bad? So ethics, but everything in a cosmological and evolutionary context.

And the Human Energy project. So it was at the end of 2019 that I started to work on the chapter of The Formation of the Noosphere by Teilhard de Chardin. So, yes, so the project is to update the science of Teilhard de Chardin and the idea of the Noosphere. And yes, that's how I arrived here.

DSW: Okay, great. Well, I want to begin with the question as to why anyone would care about Teilhard, why anyone should care about Teilhard and the concept of the Noosphere, using some of your own language from the articles that I've read. Some of the things you write are, it gives hope toward a positive and meaningful globalization. You also write, a contrast, the Noosphere vision provides direction and hope for the future, hope to tackle global challenges, whether they are social, economical, ecological, technological, or climatic. Most importantly, the Noosphere is a holistic idea that forces us to think of these global challenges together as tightly interconnected, the vision of the noosphere might thus be our best bet to tackle meaningfully the global challenges of today. And so I love that description, Clément, because it basically focuses on the outcome of these concepts, and you contrast it to other sort of globalized concepts, such as globalization, which is kind of an economic concept, Gaia, which is kind of an environmental concept and also technocratic visions of the future. So could you just elaborate on that, what the Noosphere adds to these other visions?

CV: Yes. Maybe the most general remark we can make is that the future scenarios that gets the most attention are the doom scenarios, the negative scenarios. And yes, for very simple reasons. It's because they are scary. So we pay attention to them. And if you look, there is actually little really vision for the long term future of humanity and planet earth. And so yes, importantly, it's easy to play Nostradamus to explain how things could fail. There are millions of ways evolution could fail and there are not many ways

to survive. So the analogy I like to tell is if you go to your doctor and you explain to him what you have, you don't want your doctor to explain to you all the ways you could die. You want to know the ways to survive.

Of course, it's much more difficult to imagine, to foresee a way forward, rather than to say, oh, we are all doomed for one reason or another. And yes, there's many global challenges that we face that give us often not very much hope. Yeah. Probably except people like Teilhard de Chardin who took kind of deep breath and saw the long evolutionary timescale and was able to see a trend of where evolution might be going.

DSW: Without implying inevitability for it. Because as you said, there's many ways to die, only a few ways to thrive. And so somehow some kind of vision that's hopeful without implying inevitability, that would be false, is part of Teilhard's vision.

CV: Yes. And I think you point to really an important question here. So Teilhard has kind of developmental view, he uses the term cosmic biogenesis in the Phenomenon of Man. And so yes, there is always this extension. I mean the two extremes are evolution is completely random and no, evolution is completely deterministic and inevitable in some direction. And yes, of course the truth is somewhere in between, but knowing what are the things that are really necessary almost for all living creatures to have, such as the invention of the eye, which appeared many times. And because it gives so much information about the environment to be able to capture light.

So you could argue that it's a kind of inevitable outcome. If we find aliens, we wouldn't be surprised that they have some kind of eyes which might work differently from the biology or the technology we know, but they would capture electromagnetic radiation one way or another. So, yes. And on this question, I think the thought experiment of Steven Jay Gould is very interesting. He asks what would remain the same if we would replay the tape of life. And some would say we would have things that are very different or very similar things. And yes, it's a big challenge to try to see what are really the important landmark kind of inevitable outcomes, even if they are quite abstract, like some kind of eye.

DSW: Well, one of the things you write Clément in what you've written on the Human Energy project website, as you say, the Noosphere is a sphere of thought enveloping the earth. And in that statement, there's actually two statements. One is a sphere of thought and the other is the scale of enveloping the earth. And I wanted to separate that and ask the question, what is a sphere of thought? How can a sphere of thought be defined at any scale, not just the scale of the whole earth, but at any scale, how would you define a sphere of thought before we get to the scale of its application?

CV: Yes. Well, in this definition, really takes an etymological meaning of it and yes, it's a quite abstract thing, but I would say it goes with the tradition of the sphere or language or discourse that has been around for thousands of years. So it builds on that. But personally, that's a metaphor for what is coming that attracts me the least, because it's a geometrical metaphor, it's a sphere. And so a sphere is a very simple thing and mathematically, one little equation it's defined. And so yes, I think if we want to define it further, we need to add some hypothesis, some models to go further.

DSW: Let me provide some of my own thoughts. I think a sphere of course implies a boundary. So a sphere has a boundary. Thought implies of course, something mental. And I would like to nominate an organism as a sphere of thought. And of course in the Noosphere, the concept of an organism, a superorganism, the whole earth is a superorganism looms very large. The first thing you said in response to my question was that there's something teleological about it. And so I think that an organism, of course it has a boundary. And within that boundary, it is highly cooperative, highly regulated. There's something mental in all creatures, even bacteria have mental processes. And of course, by the time we get to organisms with nervous systems and they clearly have mental processes.

So would it be right to call an organism, a sphere of thought? And therefore, I mean, we're working towards the idea of a planetary superorganism. And so I think it's actually quite important to be able to conclude that an organism qualifies as a sphere of thought at a very small scale. And then what we need to do is to expand that sphere. So how do you think about all of that?

CV: Well, I wouldn't go as far as you as to say that a bacterium is a sphere of thought, or has thoughts. I would start, I mean, maybe with the appearance of nervous systems and maybe even of associations of the capacity of associations. But yeah, that's just a question of definition. Although in Teilhard's worldview, everything has some degree of consciousness, that is law of complexity consciousness. So even the inanimate world as has a tiny bit of consciousness. So he holds a kind of panpsychist view and that's actually his key to have one consistent story for cosmic evolution is that he doesn't need the dichotomy between matter and life that Bergson had because the whole universe is consciousness and complexity increasing in various forms.

DSW:Yeah. And you say that that panpsychic view has become quite marginal in modern terms and not everything Teilhard said we need to validate. I mean, nobody's clairvoyant. And so when we evaluate Teilhard and the concept of the Noosphere, I think it's remarkable how much he did get right. But that doesn't mean that he got everything right. And one of the points I wanted to make Clément, which comes through when you're writing, is that the concept of evolution, of course, preceded Darwin. The word is most closely related to the word development. And the evolutionary perspectives before Darwin, well, frankly, they weren't very productive. And what made Darwin's theory so significant compared to the other concepts of evolution during his day was that specific mechanism of variation, selection and replication. That's what made it so distinctive and remains distinctive today.

So if we want to talk about something like cosmic evolution, we need to be clear as you do, that this is not Darwinian evolution. We're not saying that the universe evolved by a Darwinian process. When we look at inanimate nature, we're not saying that it's teleological and functionally organized in the same way as animate nature. So distinguishing broad, generic concepts of evolution with the specific concept of Darwinian evolution. In other words, defined as any process that includes the three ingredients of variation, selection, and replication is for me an important distinction. And I'd just love you to comment on that. Darwinian evolution, by which I don't mean genetic evolution, we're going to get to that. Darwinian evolution goes beyond genetic evolution. And one of Teilhard's great insights was to actually understand the importance of cultural evolution way before his time. But the distinction between variation, selection, replication processes, let's call that Darwinian. As opposed to more general concepts of evolution. Could you comment in on that?

CV: My colleague, Joseph Campbell, calls himself a universal Darwinist. He would argue that some kind of variation and selection happens also outside of living things. And he formalizes this with reasoning and so on. And I think the most general thing is that it's a kind of learning process where some things stay and other things can build on top of this. So I just wanted to mention that there are people working on making this continuity of evolution. But I do largely agree with you that it's a clearly different process that's happening since the origin of life. And also yes, the metaphor when we speak about cosmic evolution in the cosmological sense, actually we mean more development because there is just one universe by definition. And so we don't have a variation of universes and a selection mechanism to select the fittest universes. So what's really happening, it's a kind of development where new structures appear, galaxies, stars, planets, life, intelligent life.

DSW: Yeah. And so, for example, we like to say nothing in biology makes sense, except in the light of evolution, but nobody ever says nothing about the weather makes sense, except in the light of evolution. The weather is a physical system. We can understand it in physical terms, but we're not teleological about it and we shouldn't be. So I think that that distinction between living processes and inanimate non-living processes, we don't have to get too philosophical about it, just compare the weather to any

life form and we're there. I mean, I think that there's something about life forms that calls for a different mode of analysis than a purely physical process, such as the weather. I make the same point by comparing, for example, a snowflake with a single organism, like a fruit fly.

I mean, a snowflake is very complicated structurally, but the only way to analyze it is in physical terms, it's a process of ice crystallization, and that's the end of the story. But with a fruit fly or any kind of organism, that's a bit different. I mean, the fruit fly is adapted to survive and reproduce in its environment. It's a functionally organized unit and that demands a certain kind of analysis. So you might say permits a certain kind of analysis in which everything under the fruit fly, its organs, its cells, its molecules, we understand in terms of its contribution to the functioning of the whole. So that's functional analysis, I suppose you could call that teleological at the very least it's functional, which is what's so special about an organism basically, and what we'd like the whole earth to become, although it by no means is at this moment. So am I on the right track? Are we kind of on the same wavelength with respect to that?

CV: Yes. Definitely, I mean, that's also the nature of cosmic evolution broadly construed is that at the beginning, there were not even atoms and atoms formed, which enabled chemistry and then chemistry enables organic chemistry and first life form. So each time there are new emergences and new things that are possible thanks to this complexification. So it just makes the point that the particular transition from non-life to life, yes, is something fundamentally new that arises in the universe with a new dynamic, with new rules.

DSW: And I think that one of the stark insights that follows from Darwin's theory, which it took him a while to appreciate, was the fact that natural selection operating at the individual level tends to result in social disruption, not social cooperation. That if it's really a matter of which individuals survive and reproduce better than other individuals, then that selects for what we call selfishness. And that in order for cooperation to take place for individuals to evolve, to benefit other individuals, there has to be some process of competition at a larger scale. There has to be some sense in which cooperative groups survive and reproduce better than non-cooperative groups, because within those groups, the non-cooperator has an advantage over the cooperator.

And my colleague, the philosopher Elliot Sober has actually taken the trouble to go through all of the editions of Darwin's books, all six editions of Origin, for example. And to show how this awareness just gradually dawned upon Darwin, that his theory could in its just individualistic form, could not explain everything we call prosocial, and that he needed to add something which was this kind of multilevel concept, that there had to be selection at the level of, he put it community. The community of selection.

You might even say that his thoughts on what we now call group selection or multilevel selection was forced upon him when he realized that he could not explain everything associated with virtue, bravery. And then he famously said, although it is not the case that the moral individual survives better than other members of his own tribe, but it is true that the moral tribe outcompetes other tribes and this would be natural selection. And he elaborated upon that progressively as he developed his own thoughts. So not only does this basically highlight the importance of cooperation, which we'll get to with major evolutionary transitions, but also the fact that in nature there's often non-cooperative outcomes. I mean, there's so much suffering and strife in nature.

And so for example, I would put it to you, an organism of course, is by definition, a highly cooperative unit. What about a disease ridden organism? What about an organism with cancer? Is that a sphere of thought or is that a disruption of a sphere of thought? If we have a predator and a prey, for example, that are locked in a co-evolutionary race, is that a single sphere of thought, or is that two spheres of thought that are at odds with the each other? The more we base the concept of a sphere of thought, or as an organism on cooperation, then what do we do with the non-cooperative of aspects of nature or human nature? What would we do with, for example, a despotic political regime or a failed state or a

slave-holding society? These are societies that we don't want for ourselves. It's certainly not what we are working towards with respect to a planetary Noosphere, but how do we categorize the absence of cooperation and the presence of strife and either the biological world or the human world?

CV: Because the tension here is between competition and cooperation and both have advantages, there is no competition anymore. There can be many drawbacks or stagnation. But yes, in the case of natural ecosystems, like the predator prey dynamics, unless there is a kind of external manager that regulates this, I don't see how it could disappear also because yeah, I mean, animals eat other animals, so some have to die. For me, the core question in this discussion is how much competition and cooperation do we need to sustain so that the system as a whole remains adaptive and evolves and continue to evolve. So now I was just going to give the example of major telecom companies, who cooperate to have high prices on communications. Then there are laws, antitrust laws against these kind of practices so that there is a healthy competition and that new actors can come in and that the users can benefit from a fair system. So we need competition.

DSW: Absolutely. We need competition. I mean, basically any cultural change, whether benign or not benign is a form of competition. When one thing replaces another, that is a form of competition. So if we want positive cultural evolution, yeah. Let it be as fast as possible. So therefore let it be as competitive as possible, but it's that target of selection that is all important. So in the case that you were talking about with telecom companies becoming monopolistic, that's a form of competition, which does not lead to a benign outcome, and it needs to be regulated, basically. Competition needs to be regulated for the common good is what we're saying, I think, in plain language. And if it's not, then we're going to get some outcome we don't want, doesn't matter what we call it. It's not something we want.

So basically it needs to be a cooperative outcome and that requires regulation. So kind of information and cooperation become joined at the hip or need to. And so why don't you speak on that and bring in the concept of major transitions as you understand it. Because I was so happy reading your work, Clément, that you highlighted that the concept of major evolutionary transitions, which goes all the way back to the origin of life. And then you saw the emergence of the planetary noosphere as basically projecting the concept of major evolutionary transitions into the future.

CV: I think this is really the key concept to understand the future of globalization and of planet earth. In a way, it's an amazing thing to be alive today in the midst of these major evolutionary transition. Because if you look at the history of life, there were very few of them. So we are somehow very privileged to live it, even though it's very complicated and difficult in many respects. So yes, major evolutionary transition is when new mechanisms of evolution emerge, with new information processing capabilities and a new level of control that can make different units, different sets cooperate and function at a new level.

And yes, I think we are seeing this new information system. It's pretty clear that it's the Internet that connects us all in very different ways. And we were connected a few centuries ago and then the rest is work in progress, basically. How the nation-states and the different actors will coordinate to take care to manage not only humanity, but I would also add the biosphere at large and the geosphere. So the climate pollution, the oceans. So it's important if we really want to think about, to speak about a planetary major evolutionary transition, that it's not just humanity we're talking about, it's the whole of earth. So the geosphere, the biosphere and the noosphere is something that is emerging now.

DSW: Yeah. I mean we agree on the need for for humans to become stewards of the rest of life on earth and not to have some outcome that's just human. That would be a dystopia for many of us, including myself and yourself, how strongly that can be justified on scientific grounds. I think it can, because, I mean, it's our life support system, but there's also, I think, almost a philosophical obligation to regard in some sense, the earth as sacred. And I'm going to come back to this, how much we need the concept of sacred in developing these ideas. Not without necessarily bringing in anything supernatural. The concept of the sacred need not invoke anything supernatural. When something is sacred, you place it above

yourself. You honor it, you're happy to be part of something larger than yourself when you regard that thing as sacred. And for us to regard life as sacred. Life on earth as as sacred. I think then puts us in that stewardship position.

But I wanted to review my understanding of major evolutionary transitions Clément, because seeing human evolution, human genetic evolution as a major evolutionary transition, I think is important. And I really think it affirms some of Teilhard's key insights because in the first place, he said that in some ways we're just another ape species, but in other ways we're a new evolutionary process. And therefore as significant in our own way as the origin of life is how I put it. That process was cultural evolution. And when you ask the question, how is it that we became so much more cultural, bearing in mind that many other species have cultural traditions.

So culture is not uniquely human. But the degree of culture is. And the reason is I think what we can say from a modern scientific perspective is because our degree of culture requires an exceptional amount of cooperation. You can't really have a fully blown cultural evolutionary system without a high degree of trust among members of the cooperative society. And that's what's lacking in our ape ancestors. When you look at our closest relatives, for example, the chimpanzees and even bonobos, what you find within a single community is a little bit of cooperation and a lot disruptive competition. Those societies are despotic in human terms. And so the first human major evolutionary transition began with an increase in cooperativity caused largely by mechanisms of social control to put it simply you couldn't just bully people in ancestral human societies, because those other people at the collection wherewithal to collectively suppress bullying is the way to put it.

And then once we became highly cooperative in all respects, physical plus mental, then this particular form of human mentality evolved. It was cooperative human mentality that enabled such things as consciousness and symbolic thought and so on. So including of course spoken language, but more generally the capacity for symbolic thought. And it had to be egalitarian. So this is what's so interesting is the idea that the essence of what it means to be human is to live in egalitarian groups that are cooperative and trusting enough so that they can communicate with each other. So, okay. Your turn.

CV: Egalitarian parts. Yes. It’s a fundamental way in which we work in groups, but there is also what evolutionary psychologists or the ones who study the evolution of morality I've found is that we are also looking for good leaders. And what is a leader is someone who is above others, who is higher in the hierarchy. So there is really this tension between, we want equality, but we want also want good leaders. And this is interestingly incompatible. And yes, I think everybody likes to have a good boss that takes a good decision. That is a leading person that drives things in the right direction. But if we would vote for every decision he has to make in an egalitarian way, it wouldn't work. So really there is very interesting tension. And I don't know exactly what to make of it. And when we can call a leader a good leader. And when do we need to go to trust more egalitarian processes and so on?

DSW: Well, right, Clément. And you know the work well of Joe Henrich and Francisco Gil-White that makes a distinction between dominance and reputation. So basically, one way to achieve high status is by the exercise of raw power, we call that dominance. The other is to cultivate a good reputation, and which of course means things that are good for the group. Coordinating activities for the good of the group. And so achieving status by reputation is what enables there to be leaders, because structurally there does need to be leadership, but leadership that's accountable to everyone. That's what keeps it egalitarian. And so that distinction between basically being able to hold leaders in check, granted that we need them, as opposed to having them go out of control. Well, of course, it's a tension that's existed throughout human history and exists to this day. So that tension will never go away. It comes back to achieving by a lower level competitive process versus a higher level competitive process. But the point I want to make is that not only was there a major ... Go ahead with your thought.

CV: No, just a thought that maybe what's lacking with a reputation game leader is some kind of force or controlled mechanism to punish the non-cooperator, the bullies, et cetera. And so my point is that if you have only trust from the others, it's not enough to manage the group you need also some mechanism to inhibit or to stop the non-cooperators. And so some kind of dominance, by some kind of force, let's say. So I think, yeah, a good leader needs both.

DSW: And the whole nature of morality is to have two dimensions. There's a compulsory dimension. We have norms. We expect each other to behave. And if we don't, there's real punishment, basically. There's your exercise of power. And then there's a voluntary dimension. We want to help people for its own sake, motivated by sympathy love and so on. And the idea that the compulsory dimension of morality creates the safe environment to exercise the voluntary dimension of morality is something that I really love that combination, basically, which makes sense of why morality does have two dimensions and why the compulsory dimension is required, because if it didn't exist, it would be too dangerous to be prosocial. Too dangerous to be altruistic without that compulsory dimension. But what people like Peter Turchin have shown is that what we know historically is the increasing scale of society should be thought of as actually a series of major evolutionary, cultural evolutionary transitions. Building in those mechanisms.

So to focus too much on the Internet, I think is not quite right, because if you look at things like, first of all, spoken language, written language, physical infrastructure like roadways and bureaucracy and meaning systems, the Axial age, I've had interviews with scholars on the emergence of democracy in ancient Greece. And all the institutions that supported that, not to speak of the philosophies. All of these can be seen as not gradual, it's actually more back and forth than gradual, but with a net increase in the scale of cooperative society, leading up to the modern nation-state and a degree, a small degree of international cooperation. I think it's quite useful to think of that as not just one human major transition, but a whole series of them, which makes the final transition to global governance a little bit more workable, basically. It's really, in some ways, a final step, as opposed to some new thing. What do you think about that?

CV: Yes. I absolutely agree that in a way we should see our nation-states as really precious, kind of ordering organizations, despite all their flaws. For me, it's clearly the next step, the core thing actually about the Noosphere and speaking about something planetary. It's first and foremost, an international problem. It's how can these biggest human cooperative structures, which are nation-states, how can they further connect and collaborate and coordinate to solve the global challenges? And they have to, because the challenges are global and that we are realizing it more and more. And so somehow the interests of the nation-states coincide more and more with interest of planet earth and that will force the nation state to collaborate and cooperate for hopefully a greater good.

DSW: And so I think that when we follow that through, in the first place, if we think of what a global moral system would look like, that's a final rung basically of this multilevel ladder. Well, the global good of course must be the highest virtue. What we do must be good for the whole earth. And there has to be a compulsory dimension to it. If you don't do that, then there has to be something done about it. There has to be a compulsory dimension. So there has to be some kind of regulatory apparatus, and that's of course not easy. There have to be such things as transparency, status of a nation needs to be earned by reputation. And these are all mechanisms that are needed at all scales. They exist at smaller scales to a degree. They're violated at all scales too, by the way. I think one point that needs to be made is that in order to have global governance, there needs to be multilevel governance.

We can't just directly behave with the whole earth in mind. There has to be all manner of intermediate institutions and meaning systems, all the way down to small groups in order for this superorganism to work. And each one of those has to work well as a subunit. So, I mean, this is part of, I think what the superorganism metaphor is if we really want to get serious about anatomy and physiology and nervous

system for a global superorganism, we need to be talking about cells and organ systems and all of that has to exist, but counterparts for them. Right?

CV: Right, right. I don't know, there is also a kind of dilemma with a question of scales. Do we really need to fix 100% transparency reputation at all levels before we can start to have transparency and reputation between nation-states? Or could we start to have something that works, even if all the lower levels are not perfectly cooperative organizations? My intuitive feeling is that maybe we need at least, I don't know, 80% or 90% of cooperative well managed action on the levels that there is a tolerance of still that the systems at the lower level would malfunction from time to time. And still the higher level could birth forth, could appear. But I don't know, what's your feeling about this?

DSW: Well, I think that it does need to be incremental and there's many lessons from lower scales that can be applied to higher scales. We know from game theory, for example, that if you have groups with some threshold frequency of cooperators, like 20% cooperators or 30% cooperators, and if they're able to basically confine their interactions with each other and then to impose sanctions on others and so on that you could actually get the evolution of cooperation from that starting point. So you don't have to start with everybody cooperating. That's not required. And very often is the case that the governance can be first sort of a bottom up board of governance and then followed by formal governance. So much regulation takes place in an informal fashion, norm changes for example.

Who orchestrated the MeToo movement? How did norm changes about sexual bullying come about? That's amazing when you think of it. Sometimes there's a shift in what people regard is right and just, and just the consequences of that. They drive laws, they're not preceded by them. And so I think that there's a sense in which that kind of thing can take place. And that's a good thing, because I think formal governance is going to be a following force. It's not going to be a leading force for the most part.

CV: Yes, those are great examples, of course. And that are made possible thanks to the acceleration of information and the fact that we are so tightly connected. And one of the main results of this is that humanity has developed an extremely high intolerance for any kind of violence, because any kind of violence can be reported very easily with a smartphone anywhere on planet earth. And so it means that the world will know about it and be outraged about it, and then suddenly millions or billions of people would react. And then yes, nation-states, and yeah, we need to have something more formally to try to solve these issues.

DSW: It's so interesting to compare, for example, the surveillance state, the idea that everything we do is being watched. We fear that about authoritarian societies, Chinese society, or Soviet societies. That's what 1984 was all about. And yet at the same time, we kind of like the idea of having every policeman have a camera on their chest to record everything that they do, and then including their misbehaviors. And so this kind of transparency has both a benign face and a sinister face, which all depends on…back to the degree of social control. That if we live in an egalitarian society, then that kind of transparency is good. But if we live in a totalitarian society, then that kind of transparency is bad.

So it really boils down to the establishment of egalitarian principles. And I think that comes down to what Teilhard talked about with respect to maintaining individual freedom. I think that he was aware of this and was aware of course, living in world war II as he did between world wars, as he did. And so obviously this vision that we're reaching for is not the vision of a fascist or a totalitarian society. And there's some sense in which the individual remains as I think he put it, that pearl beyond price, was the worth of the individual.

CV: That's an argument from my colleague Dirk Helbing. The notion of privacy can be seen as something very important at a systemic level. Like even our bodies are composed of cells which have boundaries. And those boundaries, they allow a lot of adaptability and easy replacement, repairing, et cetera. And when we violate privacy, it says you would explode all the walls of all the cells in your body, you would

die immediately. So I mean, that's an argument I was sensitive to. We need privacy just for a systemic reason like this.

DSW: It makes it benign. And from the very beginning, this kind of fiercely protected egalitarianism has both an individual pull and a group pull. So basically bullying is the great problem. So basically you can't tell me what to do. You can't bully me, so there's that. But then there's also, and we're going to do this. And so it's like it's individualistic and communal at the same time. And that needs to be scale independent. That needs to be true today. That we have this sense of individual freedom that I can do what I want to do as long as it's not harmful up the scale. And in fact, I need to do it because we need to make decisions together and so on. Part of being part of the group, superorganism is being part of the group brain and taking part in decision making processes and so on.

So I think what's really uplifting about Teilhard's vision, or at least the modern version of it that we're trying to construct is that it is so equitable and egalitarian at the same time as it's communal at the global scale. It's like, being able to retain all our values. There's no steep trade-offs between those communal values and those individual values in my opinion.

CV: Yes. Although, I ask myself if those moral preferences of egalitarianism or others that evolved through time with the evolution of humans in small groups, would they necessarily be always fit in bigger groups of like cities or indeed the whole planet earth. It might be more complicated than that. And our biological heritage might bias or slow us down somehow. And maybe we need to find new kinds of values and to learn new kinds of values that fit more with this global superorganism that is arising.

DSW: Yeah. Well, I think I had a whole conversation on that with Shima BeigI, your colleague there over there working with Francis. And I think cities are a wonderful focus, a wonderful focus, because they're that intermediate focus I was talking about that there should be some sphere of thought, which is let's make the city this sphere of thought, as opposed to the whole earth. Let’s make a smart city. And the smart city movement is all about that. And I think that her whole message with her mindful of smart cities manifesto is that in the first place, we don't want those technocratic versions of smart cities. That's like your technocratic future that is not exactly what we want at the planetary scale. We need some kind of compassionate city that's compassionate for its members and it needs to be consultative.

If you really want a smart city, well, ask people. Ask the residents of this city what's going to work for them. And first and foremost research shows us, they care mostly about their neighborhoods, that's their primary concern. So let's make the neighborhoods good first. Those are the cells. And so on and so forth. So I think that when we focus on the city of something which is a lot more manageable than the whole earth, but still is the same problem. It's the exact same problem. The city is big enough so that it expands multiple levels of organization just within a city, all these processes that we could recognize as anatomy and physiology does retain the basic human values. So I think if that's true for a city and for a nation, why wouldn't it be true for the earth? I really see continuity there, which I think is a wonderful conclusion to be able to reach that the same principles are scale independent, I think is an amazing thing to be able to say.

CV: Yes, I think you're right. And, in a way, if we take the organism analogy, somehow, if we want to live, we have to keep our ourselves happy, to give them oxygen and nutrients and everything so that they function. We can't go against their will because it'll destroy ourselves too. So indeed we need to satisfy the functioning of each level to get something bigger going.

DSW: Yeah, I think that's, what's on offer. Well, I want to end Clément, on the topic of religion because Teilhard of course has this deep spiritual quality to him and not just spiritual, but something which he regarded as like a metamorphosis of the Christian religion. He ends the Phenomenon of Man by saying something to the effect of even to a mere biologist, this is nothing other than the way of the cross, which is a fascinating statement to make. And a lot of people want to separate the scientific part of Teilhard

with the religious and spiritual part, but I'm not sure that's either possible or desirable. And as a way to introduce it, I'd like to observe that as someone who's studied religion very carefully all the way back to my book, Darwin's Cathedral, published in 2002, that there's actually two major definitions of religion that are not compatible with each other.

The first one of course defines religion as belief in supernatural agency, supernatural agents figures large in one definition of religion. But the second definition was by Durkheim who wrote, a religion is a unified system of beliefs and practices relative to sacred things which unite into one single moral community called a church, all those who adhere to them. Not a word about supernatural agency in that definition—a unified system of beliefs and practices relative to sacred things.

So the sacredness of things, a moral community, is Durkheim's definition of a religion. And I think that Teilhard's worldview might qualify for that as something which is in the first place fully scientific, so that we could explain it entirely naturalistically, basically it's a form of methodological naturalism, but nevertheless, if it does function in the way that you introduce it in terms of something which provides hope for the future and so on, and identify something which we're willing to be a part of, something larger than ourselves, and that we can help to bring it into being, this is kind of what they call process theology.

It seems to me that that's something that we might want to actually not shy away from and embrace if we really want this system to be something that it does provide a sense of hope and does actually result in the benign outcome that we're hoping for. So what are your thoughts on that? And to finish up.

CV: The way Teilhard was acting is he was trying actually to update Christianity. He was trying to make his vision compatible with Christianity by also by dating or changing the interpretation of what was known or believed. And I think that's what theologians should do is to keep on reinterpreting the sacred text, with their time, given what's happening at this particular time. And, the thing is that he did not really succeed in convincing the church of his ideas, his theological ideas, on the contrary.

But the interesting thing is that yes, it is still very controversial theologically, but that makes him all the more interesting. And so the alternative to that, to try to update an existing religion is to try to start from scratch or to start from nature, let's say. And you have this whole movement, which is called religious naturalism, which sees the epic of evolution as something sacred. And so therefore that it's nature that is sacred. And so I'm not a religious person, so I'm rather attracted to these views. But then you have the problem that is kind of attempts, they have no history, basically. So we have no rituals. This religious naturalistic attempts or others kind of new religions. They don't have their churches, they don't have their rituals. So everything is to be started from scratch. And I think it's extremely hard to try to justify ritual and integrate them in the light of people. It takes centuries or millennia to happen. And so in a trying to update existing religions to adapt them a very promising strategy.

DSW: First of all, this was the objection of humanism. And you go back to people like August Comte and so on. I mean, that was in the explicit effort to create a religion of man and temples, and it didn't work. I mean, so that kind of is in your favor. But I think one thing I'd want to end with when it comes to the pace of cultural evolution, that's highly, highly variable. And we know that the pace of cultural evolution has accelerated amazingly. And now thanks in part to the Internet and the Internet age, clearly cultural change is taking place orders of magnitude faster than it did before. And so you don't want to lightly say this will take centuries when in fact cultural evolution like chemical change is something which can be catalyzed and is already, I mean, look at how fast it is now.

And so I do think that it is possible to have basically a naturalistic religion and to be not a new idea, but to actually with some of these new evolutionary concepts to succeed and to give it an experiential component, a ritual component, if you might, to understand the whole nature of ritual, just like the whole nature of sacredness is something which need not involve supernatural agency. So these are all

some of the things that excites me about updating Teilhard and the Human Energy project and so great to have great scholars like yourself involved, and so really happy to have had this conversation with you and to showcase your work.

CV: Thank you so much. It was a really pleasure for me too. And yes, we should further discuss this possibility of indeed accelerating religious naturalism. It's an excellent point that everything goes faster. So why not?

DSW: Why not this?