

SCIENCE OF THE NOOSPHERE

Jim Coan and Garry Shteynberg

with

David Sloan Wilson

David Sloan Wilson: Okay, well, I'm so excited about this conversation that's just about to take place with Garry Shteynberg and Jim Coan. Welcome gentlemen.

Garry Shteynberg: Thank you.

Jim Coan: Thank you.

DSW: I want to give a couple of minutes of introduction. This conversation is part of a series called The Science Of The Noosphere. That term was coined by Teilhard de Chardin among others to refer to a mental dimension to human society. And Teilhard observed that while in some respects we are just another ape species, in other respects we're a new evolutionary process, cultural evolution.

And that made the origin of our species as important in its own way as the origin of life. And he asked us to imagine what he called tiny grains of thought, which then expanded and expanded until ultimately they were going to envelop the entire earth or a global consciousness that he called the omega point.

And when we talk about that kind of thing, it sounds like science fiction. We hear words like the global brain and the group mind and collective intelligence. And what's amazing I think as we're about to learn is how much that concept of a global mind, a group mind, extends back to the very beginning. That when we go back to those tiny grains of thought, we will find not individual thinkers, but it's like groups all the way down.

And the reason that's new is because of a tradition called individualism. For the last 70 years, we've just been steeped in the belief that the individual person is the fundamental unit. When in fact we got that wrong, there's a sense in which the group and the small group is a fundamental unit of human psychology, of human mentality, and that's what Garry and Jim are experts on.

So, so amazing. Jim, I've worked with you, we've written a paper titled Groups As Organisms: Implications For Therapy And Training. And Garry, the title of some of your articles are Shared Worlds And Shared Minds: A Theory of Collective Learning and the Psychology of Common Knowledge. And a new article Agency And Identity In The Collective Self: What Is It Like To Be a Group? And so let's begin by just having you tell us who you are as human beings and how you came into this line of work. Garry, why don't you begin and then Jim.

GS: Sure. Great. Thanks for having me, David. This is really a dream come true. It really is. Okay. Well so yeah, my name is Garry Shteynberg. I am an associate professor of psychology here at University Of Tennessee. My academic journey has been a circuitous one. I first wanted to be an organizational psychologist where I wanted to study organizations and businesses.

I guess I should say that my family immigrated here from Soviet Union when I was 11. So being the son of immigrants I was expected to do something extremely practical. So some business is what I was thinking I was going to do and quickly found out that wasn't for me while I was pursuing it. And I got really interested in cultural psychology in particular, cross-cultural psychology how people vary across the world.

Things like individualism, collectivism and power distance. In the end I found myself wanting more. And during my PhD, I took a leave of absence and went to Oxford to study social and cultural anthropology

for a year. And that really opened up the flood gates to all sorts of ideas that I really needed to keep going forward and really keep going intellectually forward and staying interested and I came back to finish my PhD, which at that point I decided it's going to be basic social psychology.

And that's how I think of what I do is it's quite basic social psychology. And yeah, so I got my PhD in that. Let's see, you asked me about as a person I gave you the academic credentials. I'm a dad. I have six year old. I'm married. I speak Russian, English, and Spanish, trying to learn guitar, that's about it, I guess.

DSW: Okay, great. Jim, how about you?

JC: I really started thinking about social relationships, right from the get-go as an undergraduate, when I started working with John Gottman at the University Of Washington helping him bring in couples, urging them to fight, not a hard thing to do. And then observing how they fight and how they negotiate conflict and observing how that would go on to determine in part the future of their relationships and their health and their wellbeing and so forth.

At that point, neural measures applied to social interactions were either at their very beginning or had not been done ever. And I wanted to do it. So I, lacking the kind of measures that I wanted at the University Of Washington, I departed for a graduate school at the University of Arizona where I took a deep dive into basic neuroscience and clinical psychology simultaneously.

And just for kicks, measurement theory. So I got really into the design and measurement of things in my minor and my PhD. So I did a lot of years of just basic prefrontal cortex electrophysiology, and then started regaining my interests largely through my clinical work and returning to the domain of social relationships. And I've told this story a fair amount, but I'm going to tell it again real quick, as fast as I can.

I was doing a clinical case with a World War II veteran who had late onset PTSD. And he was unable to engage with the therapy because the therapy is exposure based. And that requires him to talk about the most difficult memories that he has. And he just couldn't do it. And at some point discussing our impasse, he asked if he could bring his wife in with him.

And I said, "Yeah, sure, bring your wife." And he did. And what happened was really extraordinary. It doesn't sound as extraordinary when you describe it. When you were there seeing it, it was like an electric switch. He would sit there, we would start talking about the memory. He would begin to cry and shake and tremble. She would reach over and clasp his hand. He would take a deep breath and then begin sobbing thunderously and telling the story his body wracked with tears. One of the things I learned immediately was that that handholding was regulating him somehow. It was changing how his brain was able to deal with the situation. And it wasn't merely regulating his emotion. It was doing something else. Because he got more emotional by all accounts, he got more sad, by everything I could see, when the hand was being held. But of course that's exactly what we needed to make the therapy work.

So I designed a study to try and simulate that, that's the bottom line, with fMRI, as anybody would, and put couples into the scanner, put one under threat of shock while they were either alone or holding hands and observed regions of the brain that are responsible for everything from threat vigilance to the regulation of effort become less active during handholding, even under threat, in the context of fMRI.

At first hand-holding for me was just a kluge, a way for me to study social regulation in the scanner. But I've come to realize that handholding is an incredibly important action that humans take and I've expanded my work. I use handholding in almost all my studies now, you find something that replicates keep doing that.

And I've really come to realize that the study...I am in part studying hand-holding, which is to say I'm studying the whole evolution and neuroscience of social relationships, it's the same thing for me. Hand

holding is like a thread you can pull that takes us through all of Tinbergen's four questions and teaches us a lot about how humans are fundamentally social.

DSW: So we can't really talk about this without social history. And I want to proceed by quoting two passages, which are actually from my paper with Jim, just to show you the sea change that took place in thinking.

The first passage is from Daniel Wegner, who was a Harvard psychologist, and he writes: "Social commentators once found it very useful to analyze the behavior of groups by the same expedient used in analyzing the behavior of individuals. The group, like the person, was assumed to be sentient, to have a form of mental activity that guides action. Rousseau and Hegel were the early architects of this form of analysis. And it became so widely used in the 19th and early 20th century that almost every early social theorist we now recognize as a contributor to modern social psychology held a similar view."

And now here's a passage from Don Campbell written in 1994: "Methodological individualism dominates our neighboring field of economics, much of sociology, and all of psychology's excursions into organizational theory. This is the dogma that all human social group processes are to be explained by laws of individual behavior that groups and social organizations have no ontological reality, that where used, references to organizations, et cetera, are but convenient summaries of individual behavior."

And so this concept of the group as the organism with its own mind is both old and new. As an old tradition it is a very distinguished tradition indeed, and occupies the early days of social psychology. But for the last 70 years, really, it has been thoroughly replaced by this tradition of individualism, which has become so pervasive that it's the proverbial water that the fish can't see.

And so that's why the work of you two, I think, is so new, at least against the background of the last 70 years of intellectual thought. And so maybe you could reflect upon that and then say a little bit about those early days. What the first social psychologists were like, what they got right? And of course we're going to go beyond them with our modern studies, but how would you comment or elaborate on this history that I've very briefly told? First Garriy, and then Jim.

GS: Yeah. I discovered social psychology via Durkheim, I had to go to Britain and take a course in social and cultural anthropology. So I could read widely enough to resurrect the sense that how social the individual is. Because certainly in social psychology proper, we're interested in cognitive conflict and individual values and priming and things like that.

But this idea of the inherent sociality of individual minds is well, serious psychologists don't study that. That's the stereotype. And lo and behold, so when I went to Britain, when I went to Oxford, I discovered how socially oriented the rest of social science is, and how deeply, socially oriented it is. And the paradox, I think, is it looked at psychology, at least at that time, it was just 2005, at least anthropology did, modern anthropology looks at psychology as a meaningful source of explanations because psychology is the science of the mind.

Then certainly psychologists have something really important to say about how the mind interacts socially and represents the social sphere. And then I went back to social psychology and I did not find that. It was empty. There was an empty space there.

Of course, I'm exaggerating a little bit. I mean, there's social identity there are the ideas of behavioral contagion and so on. And I would love to talk about those ideas and I just don't think they don't nearly go far enough in understanding how individuals represent themselves as social beings. But yeah, it was really a wake-up call to the idea that social psychology as I knew it that I had read for the last 5, 10 years at that point, was highly individualistic.

And of course I already knew that to some extent, because I was studying cross-cultural psychology, but it took me reading outside of social psychology to really understand how individualistic we are in what we're interested in, and what we believe is worthy of serious study. And I think we're still there.

DSW: Exactly. This is still very much a minority position. So Jim, your turn.

JC: Yeah, well it's interesting to hear more about social psychology. I'm not a social psychologist, I'm a clinical psychologist. And my impression is that if anything clinical psychology is in a worse situation than social psychology is, or has been. I think historically though, my training is also in research methodology. And so a big part of what I think happened historically comes from some of the early introspection-based psychologies and responses to that.

So if you look in the early days of psychology as a science, you very quickly run up against issues that we still struggle with today of measurement. How do we measure things like, I mean, let's take an extreme example just to make it really clear. How do you measure the sublime? You can't, it's very hard to think of how to measure something like that.

But people were taking it seriously and they said, "Well, what we need to do is develop a really rigorous introspection." There's a gaping methodological problem with that, which is that it's not universally observable when it's your subjective experience. And part of what happened was the response to that, which was Watsonian early methodological behaviorism. We are not going to study anything that we can't observe directly. And the behavioral paradigm, which I'm super sympathetic to. I consider myself a radical behaviorist in many ways. A Skinnerian if you will, but that paradigm... Right. Scary monsters, zombies. But that paradigm really got stuck in individualism. And this is because it failed, as brilliant as Skinner was, because I think Skinner really took it to where it needed to go. Except poor Skinner was a product of his time as well.

And this is still the era when we're counseling people not to coddle their babies because it will spoil them, based on behaviorist advice. And so Skinner's still thinking well social contact isn't even a primary reinforcer. It's still jelly beans or that's still a little glib, it's air and food and temperature, these kinds of things.

But when you marry the reality of humans as animals to some of these behavioral principles, and you realize that the human animal requires a social network to do everything, to do all the things that Skinner worried about eat, sleep, get air, but also to think, to remember, to learn, to develop then things really changed.

So, in clinical psychology right now the problem is we're still left with a legacy of the canonical therapeutic intervention, which is expert therapist sits down with person who's got a mental problem and sets about working on that mental problem. This is ridiculous. I'm amazed that it works as well as it does, and it works pretty well. But the reason that it's ridiculous is that...

DSW: Jim, let me break in. One of the reasons that it works is that the therapist is providing just a warm human relationship with the client. And it has nothing to do with specifics. It's just, there's at least one warm human bond now between the client and the therapist.

JC: Well, and I think a lot of the fuel there is that the client and the therapist join together with a shared goal and they start having what's called a three-way interaction where they're both looking at the same goal instead of just each other. That's a type of social interaction that is absolutely vital. We think of social interaction is you and me conversing like we are in this situation, but a more common social interaction is you and me walking through the world, looking at the same stuff, orienting our minds towards the same goals and joining together as a larger organism with the same hands and feet.

DSW: Yeah, that's well put that's very nicely put. Yeah. And there's a whole story to be told why individualism, and it's a complex story. It's not just a bad ideology that came and now needs to go. No, it

has to do with reductionism and so much more. And we'll tell that story later, but let's fast forward to the present to your own current work.

And describe for us, how can we think about small scale social interaction as a miniature, or you might say a micro-noosphere, this mental dimension of human society that Teilhard talked about and that we think about at a large scale, shrink that down and think about it at a small scale for every human cognitive process, memory, perception, decision-making all of that as fundamentally a group process. I think, that's what your work represents. And Jim, why don't you begin this time? I think I'm describing what you call social baseline theory. Why don't you introduce that—which I think is a continuation of what you were getting to.

JC: At rock bottom, at its baseline, you might say, social baseline theory is the proposition that every human perception is in reference to social resources. That's a big claim. I grant, that's a big claim, but we have an increasing international database in support of that claim. Not just our lab.

We have done some of our own work and my colleagues here at the University Of Virginia have done some of our own work showing at the very least that people literally see shock threats, that we present in the scanner, differently when they're having their hand held. It's a pretty abstract example. My colleague Denny Proffitt has shown that when you are perceiving the slant of hills, that hills are steeper when you are alone and hills appear to be less steep when you're standing next to a friend.

Now, this kind of thing—and by the way, you mentioned Dan Wegner earlier David, one of Dan's major contributions to my work and to, I think, social psych theory in general is the idea of transactive minds in particular what you call transactive memory, which is that small groups remember together. This is exactly like the kind of thing that Garriy has been writing about. That we learn together and that we do so efficiently, which is just the way a single brain is organized. Single brains are organized efficiently. Small groups are organized efficiently. What does that mean? That means that we distribute our minds non-redundantly. You do some of this, I do some of that, together we're much more powerful than either of us would be alone. We have been looking at also how the self is represented in the brain as a function of togetherness versus being alone.

And one of the things that we find is that we find, I think, compelling evidence that the self is a process, a verb, not a noun that draws on materials to build itself. And one of the core materials that the self draws on is the social milieu in which you operate so that you construct yourself based on your social relationships.

And this sounds perhaps metaphorical, but it's not. It's material right down to the way that your neurons fire. So one of the things that we found is that when we, for example, place your good friend under threat of electric shock, your brain looks almost identical to the way it looks when we place you under threat of shock. If they are really frightened of the threat so are you. If you assume that they find the threat not threatening, then you don't find it threatening to yourself either.

This did not obtain when looking at strangers at all. So you look really different. You seem to know that strangers maybe ought not be shocked, but you're not assuming that they're going to respond the way that you do. You're not representing them as you. And we think that this overlap in the self and the other is the mechanism for how being around others alters our perception. Our brain comes to encode their resources and the demands they face as our resources and the demands we face.

And so when we move through the world in reference to our social resources as well as our own, our brain budgets our own resources differently depending on access to them. This is why when they're near us, the hills look less steep because we assume that we have their resources as well as our own. And that change in perception alters our motivation for walking up the hill. Now, it's safer to walk up a hill.

DSW: Jim, I wanted to get this in somewhere in our conversation it might as well be now. Is it the actual physical act of touching? I think, it can't be that specific, but there must be some sense in which the social resources are communicated and perceived by the brain, just on the basis of social support without there having to be a physical contact, would you just comment a little bit on touching per se, as opposed to your social resources more general.

JC: Like everything in nature, like everything that our body and brains do, our behavioral options are organized hierarchically in terms of their signal value and their cost. Particularly, their cost. One of the most important things that we do is know our proximity to our social resources. There's a lot of ways we could know that we could know that by having a phone conversation. We could know that by standing next to our friend, or we could know that by pressing our bodies in some ways up against our friend.

The answer to your question, broadly, is that no, handholding isn't necessary. But hand-holding is the easiest way for our brains to know that we're in the presence of another person, it's the least ambiguous. And so it requires the least specific kind of processing of perceptual information. There's a privileged nature to touch in terms of communicating the presence of another, but it's not necessary. We have other tools eyes, ears, smells, and this amazing ability to talk to each other and all of this stuff contributes.

DSW: That's a great answer Jim, a really great answer, and it makes you realize how much such things as no touch rules can inadvertently create problems. And I also wanted just to mention on distributed memory, how much scenarios of human cultural evolution and human evolution places an emphasis on just that. And that the need for an increase in the scale of society, basically the tribal scale of society, just to hold the information that's required for the culture.

And we have examples such as Tasmania and other examples in which when the size of a human population was shrunk, they lost their cultural toolkit. There just weren't enough heads in order to contain that information. So that's very deep in our current understanding of the evolution of our species from the beginning.

JC: We have pop psychological names for this. We've all maybe heard about the idea of a brain drain. That certain regions of the country or the world, becomes access to get out of an impoverished situation or a particularly dangerous situation by virtue of something that you know, you leave. And the location of origin then suffers from the loss of your brain.

DSW: Yup. It's happening in Hong Kong right now as we speak. So Garriy, please take your turn. Some wonderful examples of group mentality.

GS: Yeah, well that was wonderful hearing Jim describe his research. I think we compliment each other quite well because my interest is how human minds represent their reality. So really I'm interested in representation. And I'm interested in the distinction between semantic representation—I'm going to get to the social part in a second, but this is just in lieu of background—semantic representation where facts, figures, perceptions just appear to us.

And then autobiographical or experiential representation. And this latter mode of autobiographical experiential representation is really interesting. Why is it so interesting? Because then in this latter mode, you don't only represent the object, the room, the person, whoever you're interacting with, whatever you may be seeing at the moment, but you're also representing, quite literally, a perspective, one's own perspective on the thing.

So the mind does this amazing dialogical thing, if you will, where it's representing the self in relation to the world. It's representing the agent in relation to the world, where am I looking at? What is he thinking? And so on, so it's an amazing feat. And some would say this is the seat of consciousness, or maybe a type of reflective consciousness is right there.

And this has been explored ever since William James. And of course before William James, you can find it in philosophy before psychology, this idea between the I and the me. This distinction between semantic facts or objects that we can be representing. And then the experiential self that we could be representing the I.

What I find really curious about this tradition is that we have not considered the fact that just like we can represent an individual agent in the given situation, think of ourselves as an I. We can also consider and represent the collective self as an agent in a given situation and think to ourselves hey, we are here, we are having this conversation. We are looking at X, we have the goal of Y. It is still happening within an individual mind, just like the representation of the I, but it's a different kind of representation. It's a collective unitary representation. And my work has really been about, first of all, describing this sort of phenomenon, talking about why it's relevant for human cognition and groups, and then, telling a theoretical story about its place in human cognition and groups.

And this is the way I love the contrast this sets up between social baseline theory and my work. So, Jim mentioned the idea that when we do things together, working on a goal together, that's a quintessential social act. I would argue that this conversation has a lot of similarity to pursuing a goal together, even if it doesn't appear exactly like that superficially. How so?

Well, when I'm talking to a person I'm constantly monitoring what they might be thinking. So I'm representing their cognition and their awareness of the world, if I'm to adjust myself to them. I'm also thinking about my own thought patterns and my own perceptions. So I represent myself as well. And what I might be seeing. So I represent both of those agents and their perspectives, but there's a third agent that I must also represent. So the theory goes.

And that third agent is a collective—we. That is, I'm thinking about what we know together. What our goal here is. And I would argue that that third agent, which is just as psychologically real as the other two, they're all psychological constructions, they're all psychological representations. Their reality is co-equal. That third agent really binds the actions of the other two.

It creates the common ground, right? It's all important because by knowing what we all know in the situation, I can then ask meaningful questions. I can say meaningful things that you will understand. Had I not been prioritizing the collective agent's point of view there'd be less ability to understand one another. So, that's the maybe philosophical background to what I do.

The kind of empirical work that I do puts people into situations where they believe they're synchronously experiencing something with someone, or they're experiencing something with someone slightly asynchronously.

It could be as little as five or 10 seconds apart. So they know that the other will experience it either before or after them, but it's not quite at the same time now, why should that matter? Why should that matter? From the perspective of mentalizing or simply taking the perspective of the other, you can take the perspective of the other just as well when they're in the moment then if they're going to be attending five seconds after you attend.

So mentalization shouldn't really be impaired by this kind of manipulation. What I believe is impaired by this kind of manipulation of asynchrony versus synchrony of core attention is this representation of a collective self knowing something. The representation of the idea that we are attending to something in the moment, whatever that may be. And that kind of representation prioritizes whatever it is, in the eye of the beholder of that agent, whether it be a goal or an object in the environment, an emotion and emotional response and so on.

DSW: Well, let me come in and introduce the concept of religion and spirituality, which of course brings Teilhard back in. And also people like Durkheim and so on, is that if you look at the fundamental nature

of religion and spirituality is to regard something as sacred, something that you place above you and wish to become part of something larger than yourself.

And so there's a state of mind it's reinforced by all sorts of practices, ritual practices, and so on and so forth, which Durkheim wrote about so eloquently and Teilhard cultivated that sense with his language. So we could really see that from a scientific perspective more than ever before. Studying the concept of the sacred, what it means to worship. All of that as this basically state of mind in which we're really functioning as members of a group so much so that we really see ourselves as part of something larger than our ourselves.

And so that aspect that you talk about, Garriy, seems to come really to the fore and leads to a euphoria. And the self doesn't go away. And it can't go away because you have to know the role that you're going to play. And so you and others within the community are all still there, but it's all organized by that sense of the sacred. And so actually, if you could respond to that, and then I want to come in again with a therapeutic piece from my article with Jim.

GS: Yeah. So let's take that example of Wegner's theory of transactive memory and mesh it with the way I think about things and what you said. So this idea of transactive memory is a powerful idea that Wegner resurrected. The idea that if I remember X, and you remember Y, and somebody else remembers Z, and if we all know where all these memories reside, we can then collaborate and have a much greater store of memory, perhaps as now represented by the Internet in some ways.

But the question is, how is it that we have access to said memories, right? How is it that we know who knows what? Because there are certain memories, even in the transactive memory system that you can not outsource, you can not subdivide. You can not subdivide, for example, the knowledge of English across agents, if English is your spoken language in the group. It's an obvious thing, right?

We all need to understand the meaning of the words that we use. We all need to know who's responsible for what, we all need to know what is the label of the thing that means a certain store of knowledge. We need to know what an engineer does. We need to know what a medical doctor does. That sort of knowledge of labels and locations cannot be transactional. It has to be common.

And the question is, how do we create this common store of information? Because it's critical, it's critical to the operation of the transactive system. And so the argument being that collective agency, having experiences, having emotions, watching behaviors from the standpoint of a we, which is a self, by the way.

It's not an individual self, but it is a collective self. And it feels just as personal, even if it in our imagination transcends the physical body. It's still a psychological construction that feels deeply personal and perspectival. It just happens to be collective. So the argument is that that collective self, that representation of a collective self is highly potent when it's enacted in terms of the memory it forms, the emotions and so on. And I should say, because I think some people who are listening to this will think, well, this sounds very much like social identity theory.

And I would argue that unfortunately, social identity theory and social categorization, which is at the forefront of how social psychologists think of human sociality, is not quite there in a very specific and fundamental way.

Social categorization, social identity as the way it's conceived by Turner and Tajfel in the 1970s and 60s comes out of the cognitive tradition, a cognitive tradition that deals with categories, if you will, categories of perception.

And the same way we categorize stools from chairs is the same way we categorize ourselves from others, this group versus that group. What I'm saying is that that really falls short of human cognition and what it actually does. Because human cognition is not simply categorization. It's also the

representation of the agent themselves in respect to the categories, in relation to the categories. And we forgot about the agent. We forgot about the importance of representing that agent.

It's being rediscovered with the renewed interest in consciousness and what does it mean to be conscious, in a roundabout way here, but we have left that alone for too long. And I don't know, maybe I think what Jim said is true, that measurement issues do plague inquiries like this. I also think we can never measure something without first elaborating and theoretically pinning it down. So it's a bit of a catch-22 of where you start.

DSW: Well, I think Jim I will soon pass to you, but I think that one of the things I'm getting from this conversation as I wanted to, is how much this stuff that we associate with the Internet actually goes back to the very beginning in terms of this distributed knowledge and so on and so forth. And when you talked about the store of common knowledge that's required before we can partition knowledge, we have to have a store of common knowledge. What would that be but language and the capacity for symbolic thought is exactly that combination of something which we all have in common otherwise we can't communicate. And then that allows us to specialize in division of cognitive labor and all of that.

And some of the most recent accounts of the evolution of language places it as a cultural evolutionary process. Not the genetic evolution of some language organ. But actually smart apes needing to communicate with each other more and inventing something like the Internet back then, without needing electronics. So I think that for me, there's amazing continuity between what we think of now as the Noosphere at some large scale all the way back to the origin of human consciousness as a kind of a micro-noosphere. So I think there's wonderful continuity there that this conversation is bringing out. Jim, take your turn.

JC: Well, just riffing on that a little bit, I often tell my students that we were each other's original iPhones. The reason that their iPhones seem so indispensable to them is that they have all the machinery in place required to use it. And that machinery is their phylogenetic birthright. That's the design specification of their organism, is to use iPhones, more or less.

It's just that they used to look like us, like other people. I was going to say one of the things that's interesting, there's two things that came up in some of what Garry was talking about that I thought were really interesting. And one of the things that I'm not as sure about. One issue is where does the self go?

Where does the self go when we are part of that collective? That religious organization, for example. And if you consult old Buddhist theories, so where you have whole sects literally doing violence to each other over this question. Does our self dissolve or does our self expand and grow?

I think it does both. When we are we, part of the reason that we become ecstatic is because we realize access to the resources that are so much larger than our own body. It's existential to be part of that group. It's existential in all the ways we want it to be, my existence is more certain now.

And then there's the idea of the transactive memory knowing who knows what? I think it's easy... And Dan wrote about this a little bit. I think it's easy to overstate that. I think that we actually don't always know who knows what, but we still settle into an efficient distribution of who knows what. And this is why when we lose someone close to us, we lose part of our biography. They carried part of our biography.

There are things we will never remember about our own life again now that they are gone, because they carried part of that. Some part of it was more salient to them as we went through it together than it was for me. And so my own biography is partly at stake when you lose a relationship.

But finally, I want to come around to the discussion of God and religion, because one way to think of religion is that it's something really unique that we do.

That rituals and artifacts and belief in a larger God, is something qualitatively different than just being a person in a group of people. And I think maybe that it's not. I think it's a way that we have expanded and leveraged our innate capacities in much the same way that we use iPhones. Dan Wegner just comes up again and again; genius is another thing. Another phrase that he, that he coined that I think is really important here.

He said that humans are hyperactive agency detectors. We're hyperactive agency detectors. We see agency and intent in everything. This is why we yell at our computers when the camera doesn't work, for example. This is why we cry and feel pain when we sell our beloved car. The car doesn't care about us at all, but we can't help but assume that we have a relationship with that car because that's what we do.

So we have the capacity for magic right out of the gate. It's just part of what humans are. But then we have this other situation. We are root and branch agency detectors, mind readers. We read each other's minds. We take each other's perspectives. We have that third person we, that Garrity spoke so well about. When Tomasello's examples, when my bike got stolen and we're walking down the street and I'm telling you about how my bike got stolen, and then we stop and I point at a bicycle, I don't even say anything. I just point at a bicycle. And we know all there is to know about that bicycle all of a sudden, together. There is this we. We're constantly in this mind space where it's my mind, your mind, our mind, the group mind. And then we die.

What do we do with that? The mind hasn't gone away. We have all this machinery for understanding minds, but we don't have any machinery for understanding non-existence, non-mind. And so we have household religion, we have pictures and artifacts. This is my grandfather's old mug and therefore my grandfather is here. This is possibly another Wegnerian thing about magical transfer, my grandfather is here.

And so religion, I think, codifies all of these things that are part of our ordinary human existence. We can't not feel the presence of our dead loved one any more than we can't... I don't know, we have to imagine that, we have to feel that presence. We can't not feel that presence. It's just like we have to eat. It's how we're constructed.

DSW: Often the way I put it is that what's universal is a meaning system all humans, all normal humans, must have a meaning system or cultural meaning system. There's great diversity in how those meaning systems are constructed. All of them are essential for organizing our experience, ultimately leading to action. Not all of them have to honor our ancestors and so on.

It's possible that uncle Fred dies and I just forget about him, but something else is taking place in my meaning system, which is keeping things going and is by being transgenerational by definition has to be something which is beyond the individual because the individuals come and go. And so that's the essence of what it means for us to be a symbolic species and for there to be this symbolic stream of inheritance that is alongside the genetic stream of inheritance, that's what's universal.

And then sometimes it takes the form of gods and so on. Sometimes it's purely atheistic. It's such a diversity of them. It's like convergent cultural evolution. It's hard to know what they share in common other than the functional requisites of being a meaning system.

But I want to end up on a practical note and also more on this issue of scale, because one of the things that's I think highlighted by this conversation is that when we talk about the Noosphere it's not just expanding something to the global scale.

It's something that needs to operate and to be maintained at all scales from the micro-scale of the small groups that we live in or should be living in. And now often those are sadly lacking, or lack the right kind of organization, to the meso-scale of all of our social identities, our ethnicities, our nationalities, and so on and so forth.

And then finally up to the global scale, which obviously it needs to be brought into existence more than it currently is. This concept of the Noosphere needs to exist, basically, it needs to be multilevel. And this is where multilevel selection comes in. And at the smallest scale, it leads to new ideas about therapy and training.

And I just wanted to introduce to our audience what we do at Prosocial World when we work with groups and we implement what we call the core design principles.

And I won't go into it too much, but you'll see the connections right away, as the first thing we try to establish for the group, which is trying to do something together is establish a strong sense of identity and purpose, in a very practical way. What are our values what are we trying to do? Why is it valuable? What does that mean? So on and so forth. I think that you can see that this is enhancing that group part of what we're thinking about. And of course, we also exist as individuals within the group. And on the topic of where the individual goes. It's the nature of human society, that it is forever vulnerable to exploitation from within.

And so individuals always have to be vigilant about being pushed around and the group has to be organized so that doesn't happen. And that's one reason why the self remains a strong identity while also being a collective identity.

And the very last conversation I had in this series was with an Australian aborigine named Tyson Yunkaporta, who's written a book called "Sand Talk, How Indigenous Wisdom can Save the World".

And in that book, he recounts various aboriginal folk tales and folk ways. And one of the things he said is what you hear every day in aborigine society is in the first place, nobody's the boss of me. So there's your assertion of individuality. And at the same time, it's always done in the greatest respect and deference to the cultural traditions, to the elders, to the rituals and so on. So there's a very strong individual element. Nobody's the boss of me, and there's a very strong communal element.

They go together and must, if you were to remove that individual element, that's the way up to totalitarianism and various excesses, the kinds of superorganisms that we don't want. So, there's all of that.

So I think what I would ask and as our final round is to ask you to comment on the largest scale, how do we expand the Noosphere to the global scale and the multilevel part, the need to do at all scales? Anything that you have to say about that would be really super helpful. Garriy, why don't you go first and then Jim?

GS: Yeah, I've only given limited thought to this kind of question. So I might fumble in my response. But first I would like to say that when the mind represents perspective, not only the object of its perception, but also its own perspective in relation to that perspective, there is something very mystical about that. And I think part of what's so mystical for me about that is that it realizes its individuality, and at the same time wants to connect. It wants to expunge it.

The next thing you want to do, if you see something is say, "Do you see it as well, right?" You want to get to a place where we see it. So there's some connection there between realization of personal perspective and the desire to then create a collective perspective on that very thing.

But people are uncomfortable once they realize that perspective maintaining its individuality and they want to expand it, they want to share it with their friends. They want to create larger groups and I don't know where the stopping point is. Maybe there is no stopping point, what could be part of this we, how broad can it go? And what is stopping it from expanding?

And I'd imagine it's our institutions, it's our technology. Although our technology in the last 50 years, and I should say for good or ill has expanded the frequency and the breadth of when we say something

like, we see something, it encompasses maybe millions or billions now than before and more frequently. So yeah, I'm of two minds on it. My one thought is that it's of course a good if it can be done peacefully.

But there's also a dark side to the expansion of a collective perspective as it's represented by the individual and the dark side is doing so forcibly. And the way you do it forcibly is not so much convince people of viewing the world the way you do. But rather by not thinking of them as people, with perspective.

Disagreeing perspectives may not be perspectives at all. So it goes. So, there are definitely bad ways of creating greater, broader experiences of collective agency. As far as the good ways, it is sad to say, but social media and modern technology has been, from what I can tell, the biggest sea change in our lives in terms of this. And it's been used mostly for purposes that do not elevate, let's say, human engagement. And of course, it's because it's motivated by making money.

But I think there's potential in these kinds of technologies, if used for good to connect people across the globe in productive ways. Part of social media that's so pernicious is that it engages all our basic sociality. This collective agency, perspective taking and so on, but it doesn't take it to its natural intended purpose, which is co-action and collaboration.

It stops before it starts, it stops the conversation. Because Facebook doesn't need us to produce things it just needs our attention. It just needs us to be on there. But yeah, I'm sorry. I haven't given any clear answers about how I would do it.

DSW: I think that's a very eloquent and well-stated, so there was very important stuff that you said there. Jim.

JC: Here we are in the modern culture of surveillance capitalism, where we are all marching in lockstep because the agent that is drawing our attention is collective outrage and provocation. That's one way to do it. That's not the way I would recommend necessarily. I mean, it's interesting I am thinking about something that David and I wrote about recently, which is this example of these Gulf Oil rigs in the Gulf of Mexico, Gulf Oil, the company.

And how they wound up dealing with their very high accident and mortality rates on these rigs. The thing was initially what you had was an analysis of why guys were getting hurt so much and dying so much. And one of the things that was realized is that, well, because these rigs are so dangerous, they're hiring tough guys, tough guys who can handle it. Who can go out there and be tough.

Well, being tough is a way to be in the world and it's a way to be in a group. These are a group of men who identify as being super tough and super strong and super resilient. But how do you maintain that group identity? In part, by never showing weakness. When you show weakness, you threaten the group. So what was happening is that people weren't telling each other when they were messing up and their mistakes were snowballing and getting people killed.

So how does this get changed? Well, one thing you could do is try to select other people. Maybe you could do that. Can you change the way that the group functions? It turns out that you can, partly by reinforcing. This gets back to how I think Skinner was right on the money in a lot of ways, reinforcing a different culture.

Okay. So what you do is you, and this is what was done. They started reinforcing vulnerability. In other words, the guys who reported mistakes would be rewarded in some way. They would start in some sense, making group cohesion contingent upon being strong enough, tough enough to let everybody know when you messed up.

And started to change what the reinforcing structure was for belonging to the group. Belonging to the group required now a different set of actions and behaviors and attitudes. And the guys took care of the

changes by themselves because of the social contingencies in play. I'm being a little abstract here. There are many details to this study.

It's a classic and it's in our paper, but bottom line is that it reduced fatalities by a huge number, a number not seen in these kinds of interventions. And I think it was because the intervention was at the group level. It was not at the individual level. It wouldn't make sense. It wouldn't make sense to intervene at the individual level. Individuals weren't the problem, the group was the problem.

DSW: Yeah, that is a great example. Go ahead Garriy.

GS: One thing that this reminds me of is the difficulty of this kind of work because as we all know, the individual mind is a great pattern recognizing machine. So when it looks at groups, it looks for patterns of behavior. It looks for differences. And where can it find those differences? It can find it among the individuals within the group. Only when we zoom out and really look at the context, look at a variety of groups, a of variety of ways of doing things. A variety of nations, a variety of cultures can then you now see patterns among those things. But that requires a real zoom out and a holding of information that with a different scale to see those kinds of patterns.

Otherwise, you're just on the ground looking at different individuals and explaining things only through those individual differences, which are no doubt real and important, but it's really...understanding group dynamics requires understanding many groups to make sense of things.

JC: Well, I would say in the context that those groups inhabit. I'm so excited to just tell David this because I haven't told him yet, but part of my new role at UVA is to try to change the culture of teaching and pedagogy here by creating a new curriculum and changing how we evaluate students. In some ways that some faculty regard is pretty radical. So I've been talking about this stuff for a long time, but I take David as a real inspiration.

David's been going, "Well, I can talk about this stuff all day long, but I want to try and do something about it." So he created Prosocial World and other kinds of interventions around the areas where he lives. Binghamton?

And I want to see if I can make some group level changes in an organization, feels particularly fun to choose UVA because it's so tradition heavy. It seems like there's a lot of inertia there, but I want to try and put my money where my mouth is and try to make some changes. And as a result of that, I've been looking into when has America, for example, when have Americans suddenly changed at the group level? And probably the canonical example that everybody would turn to is World War II. We suddenly have this common enemy or this common threat.

And we ask Americans the same Americans culturally, more or less who are refusing to vaccinate and who think that Trump won the last election. Asking Americans to turn out their lights at eight o'clock all over the country. Asking Americans to grow victory gardens and do all of these things, eat less meat, heavens how could that happen? And they did in huge numbers all over the country, people all different backgrounds, engaging in this collective behavior.

What I know is that the kind of scaling that you're talking about David is possible. I know you know this too, we all know this. That it's really going to require a careful analysis of how that scaling happens if we're going to make it happen in a way that isn't just surveillance capitalism via Facebook, because we know that that can work. That's all Skinner too.

GS: I'd like to suggest something. I think we have an institution like that, that we are engaged in. I think science is that sort of institution where there's a pluralism, there's an openness, there's a collective narrative and collective attention. It requires quite a bit of education to engage in this kind of noosphere.

JC: Agreed upon symbolism.

GS: Yeah. But in a way we have it, it just hasn't been expanded. And I also think that some of our problems of today that I feel so sometimes despondent about when the half of the population rejects a lifesaving medicine, for example. Or this self fulfilling prophecy of democratic institutions failing, conspiracy theories. What it shows is that lots of the population has not been integrated into that collective narrative and they feel perhaps resentful of not being included of being marginalized. So yeah, I don't know, that's my concrete proposition make a scientist out of everyone.

DSW: Science indeed, that's a great way to end science does come as close to international cooperation as we'll get. Science and some aspects of technology such as the International Space Station and what you were describing earlier Garriy was really nothing more than a process of cultural evolution. You said, we have to survey variation on a large scale. We have to see what works and doesn't work. We have to select it. And in cultural evolutionary terms, this means basically a managed process of cultural evolution at the larger scale, larger scales than ever before.

But also at all scales. So I think what we have in the updated version of Teilhard that we were talking about, and that this series is addressing in many different forms, through these amazing conversations, is a narrative and meaning system, you might say. A science-based meaning system. That really once you step into that, when that becomes your world, then you see yourself as first and foremost human beings and citizens of the world.

The welfare of the earth becomes your primary social identity, your god. And then everything underneath that remains important, but needs to be coordinated in order for the global common good. And I think that more people actually step into that worldview and have that reinforced, then so much that's currently going wrong for the reasons that we have listed and easy enough to understand can go right.

So, I have tremendous optimism at the end of the day. First, a paradigm shift in our meaning system, and then what follows from it in a science-based experimental way. And so I think that's the optimistic prognosis for the Noosphere. So gentlemen, what a wonderful conversation, so happy to have preserved it for all time. And thank you very much.

JC: Thank you.

GS: It's been a pleasure. Thank you, David and Jim.