David Sloan Wilson: I introduced you by saying how different it was that someone from the world of statecraft could be doing this compared to people that are spiritually oriented. But then you reminded me that people that go into the military or to defense and that sort of thing often are motivated by the desire to serve. And if you combine the desire to serve with a suitably holistic mindset, that story, then there you are, you've already got a path.

So in both cases, you're more or less working to create something larger than yourself. So that has resolved that paradox for me. And another point I wanted to make is that, based on my own work and my colleagues about basically creating a new paradigm for economics, of course, you're right, that the neoclassical market driven paradigm is deeply, deeply flawed. But when we talk about socialism, we find that it is flawed in another way, which is in the direction of centralized planning. And centralized planning cannot work for reasons that Teilhard would appreciate.

In the first place, the world is too complex to be understood by any team of experts. And in the second place, socialism usually results in a concentration of power in the hands of a few elites, and then it fails for that reason. And so, if centralized planning doesn't work and if laissez-faire doesn't work, what does? It's a managed process of cultural evolution, something more or less what Teilhard had in mind. And so, this is the kind of discourse that we're having over on my end. And of course, it goes together so well with what you are doing.

Among other things, John, you're a great scholar of Teilhard. I learned a lot from you. And one thing you point out, is that he was not the only want to be talking about the Noosphere. There were two other contemporaries at the time, Vernadsky and Le Roy. Could you talk a little bit about their views and this must indicate something about the time, that three people were more or less thinking along the same lines. And there's an important Russian influence here, always has been. You've also mentioned that there's a Noosphere Institute in Russia. And so, tell us a little bit about the origin of the Noosphere concept, in which Teilhard was not the only founding person.

JA: This was a period after World War I in the 1920s, where Teilhard had the good fortune to be interacting with Vernadsky and Le Roy. And Vernadsky, of course, part of the Soviet's ethos that is emerging at the time, and there was, in some quarters, a great enthusiasm for the potential of the Communist model. And of course, you're right. Central planning had problems from the very beginning. The new economic plan itself had to be put in play, which was largely market reforms, had to be put in place in the 1920s.

But to think about these three interacting, just think about the sparks that had to fly when they were engaging in a discourse about the Noosphere. And I think the really important point that comes out of their discourse is this notion of whether it could possibly occur smoothly this development of the global thinking circuit which Teilhard anticipates the technology that will do this. He couldn't have imagined the internet and the World Wide Web itself. But he said, "One day, there will be a technology that knits together all, with all, and they'll be able to communicate instantaneously."

And that's prtty amazing for a guy thinking about this 100 years ago. But the bigger question they asked themselves was, could this transformation of humankind into a thinking circuit rather than a group of scrabbling nations fighting with each other over scarce resources. They just, again, witnessed this terrible cataclysm of World War I in which the leading powers and empires of the world dealt each other sledgehammer blows.

DSW: He was a stretcher bearer in World War I. So not only did he lived through World War I, he was carting off the injured and dead bodies from the battlefield. And he has an amazing quote, which we can present about why the battlefield, why the front was so captivating—and why people, everyone there, wanted nothing more than to return to the front. Despite all the hardship and life threatening dangers, they were witnessing something at the front that was irresistibly attractive to them.

And I sometimes imagine that geologically as these social tectonic forces were in play, I think that's how Teilhard imagined it also, that he was witnessing these tectonic cultural plates colliding with each other. And then over the longer term towards some positive end, despite all of the amazing destruction and what appears to be the very opposite of progress towards more harmony and coordination.

JA: Well, this was the great hope, of course, that World War I was the war to end all wars, simply because it was so horrific. And the only way to make sense of it was the idea that this is the last war. As to the enthusiasm for the front, it was somewhat mixed. In 1917, 100 French divisions mutinied, most of the field force, and refused to attack the enemy. And I take more heart in that actually than in the massive artillery barrages and millions mowed down by machine guns. These 100 French divisions said, actually, the slaughter is purposeless. And they said, our mutiny is conditional.

We will defend France if attacked, but there is no reason at this point to attack the Germans, and certainly not with the terrible and very poor strategies that are being employed, which are these mass frontal attacks. So Teilhard was very busy carting wounded and dead away from the front.

Kind of amusing anecdote about tectonic shift. There came a point, they kept trying to break the trench deadlock on the Western front. And a British General, by the name of Plumer, decided to have his sappers, his engineers dig a deep tunnel across no man's land and under German lines, and to stuff as much explosive as they possibly could in it. And when they finally detonated it, this is near Messines, where it went off. And the windows of Parliament in London rattled at the time of this. And one of his subordinates went up to General Plumer and said, "General, today, you have changed history." And he said, "Well, perhaps not history, but certainly some geography." And because they'd blown up a quite substantial area. It, of course, didn't change the war.

The advancing troops fell into a massive crater and they were decimated by artillery fire. And personally, I think it was the futility of that war that got Vernadsky and Le Roy and Teilhard to raise up their eyes to the hills of the Noosphere. And even so, the experience of the war suggested to them that—and their own discourse—suggested to them that reaching that Noosphere and developing what Ronfeldt and I would call Noopolitik later on, reaching that could take a terrible paroxysm, is I think the term that Vernadsky used first among them.

And I hope that doesn't have to be the case. I don't think the future is driven by a deterministic proclivity of humanity to move to the edge of self-destruction before backing away. I think there's mounting evidence and much greater support for something. And clearly, in the United States, the desire to become less interventionist, militarily in the world, is a very, very positive sign emerging.

DSW: We've done an interview with another Stanford colleague of yours, Josiah Ober on Classical Greece, where I learned that actually Classical Greece was preceded by a period of collapse, social collapse, that more or less eliminated palace level society and then democratic governance emerged from that, and I do think that this is often the case, that it takes a crisis, of sorts, basically to knock the social system into some other place on this very complex parameter space, but that it doesn't need to happen that way. And of course, the more we learn about cultural evolution, the more we're able to manage it.

Then we can arrange for soft landings rather than some crisis to just knock us someplace else and then climb our adaptive landscape from that. But I'd like to focus on the concept of democracy, John, as to its role in the Noosphere, so speak to us as you have in your paper, as to the importance of democratic governance in the formation of the Noosphere at any scale. Because the Noosphere, I think, when we think of it, it's like our group level functional organization, complete with a group mind, then that can exist at many scales.

That could exist at the scale of a tiny hunter-gatherer group, which is what I take as what Teilhard meant when he talks about tiny grains of thought. Current organizations like a corporation or a nation is a

Noosphere of sorts, which might work well or poorly. And then of course, we're trying to expand that envelope to the globe. So at all of these scales, actually, from the smallest to the largest, how do you see the role of democratic governance?

JA: I think democracy is going to be essential to the further development of the Noosphere, and indeed to Noopolitik. And I want to draw a distinction here between democracy and republicanism. What we think of as free societies today are almost all republics. And it has proved problematic, including in the United States. C. Wright Mills talked about it in terms of the rise of a power elite. Many, many others have spoken to the issue—Revel, on how democracies perish. They become republics that are captured by narrow and powerful interests.

And again, I think in most democratic societies around the world, you see these problems of whenever a government is representative in one way or another, it conveys power to those whose own interest may be inimical to those of the people in a larger sense. And so, I think if there is to be a Noosphere in the world of Noopolitik in the future, it will require the expansion of pure democracy. Now, today, there's really only one country in the world that comes close to having pure democratic governance, and that's Switzerland.

Where they have at least four times a year, public referenda on matters of constitution or legislative acts or policy initiatives, plebiscites, et cetera. And I think they have shown that what's the country of what, seven or eight million, they've shown that you can do this with larger numbers. John Stuart Mill was a big fan of pure democracy. He saw the problems with republicanism as well, representative democracy. And it seems to me that his view, and Rousseau's for that matter, who also favored pure democracy, was that it can only be done in very small settings.

But out here in California, we do a lot of pure democracy. We have lots of initiatives. There are many, many opportunities to move in the direction of…we're considered one of the more progressive states in the United States and one of the more open societies in the world. And we have a pretty vibrant economy as well here, of course, Silicon Valley, sort of world leader in taking us into the information age. So I think there are ways to expand pure democracy that would be the real strategic aim at this point.

Because as we look at…here in the United States, we like to say, well, we're the world's oldest democracy, which I'm not sure is quite true. And depending on how you measure things, as a slave republic from the beginning, it's hard to see ourselves as very high on the democratic scale. But it seems to me as I look around the United States today, I see a lot of the problems associated with representative governance, and not least gerrymandering, not least what the founding fathers called the power of faction that would drive issues. And of course, C. Wright Mills' problem with power elites, or what Bertram Gross later called friendly fascism, which, again, is the smiling face of a democracy that is actually run by handfuls of very, very concentrated, corporate, and other forms of wealth.

DSW: John, so I think the giant tech organizations that emerged from Silicon Valley are by no means immune to that either, just to make a small point. But what you said is so interesting, and it makes me want to ask you, as someone who's such a good historian. By my view, the very concept of worldwide cooperation was unimaginable maybe even before the 19th century. Nobody could really imagine the idea of worldwide cooperation. The first expression and religion was the Bahai faith, I believe. That a religion that could really span all previous religions, so 19th century.

What do you think about that, and why was it that idea, which I would say today, by the way, is rapidly becoming the only thing that makes sense, was impossible to imagine until maybe even as late as the 19th century? What's your own view on that?

JA: Well, I think technology plays a large role in this. You see a lot in the New Thought movement and Transcendentalism as well, these larger notions of humanity becoming unified around common values and norms of behavior. The telegraph was what Tom Standage called the Victorian Internet. And the year

after the American Civil War ends, there's a transatlantic cable. You can now send a telegram between San Francisco and Hong Kong at this point. Of course, it doesn't go across the Pacific. It goes eastward, across the world to get there.

But you can now move information fairly quickly. People know what's going on in far-off places, and they begin to care about it. People learn about the terrible depredations of King Leopold in the Belgian Congo, and a civil society movement rises up to curtail his abuses. The same sort of thing occurs in the late 1890s, when it's learned that the British are creating concentration camps for the Boers in South Africa where a war is going on there.

And the mothers of Britain, one of the early NGOs, was able to help force their government to reach a peace accord with the Boers, the Vereeniging Peace Treaty. So the telegraph was, I think, one of the first ways that began to link…radio, of course, helped. And then as we move forward to things like direct broadcast satellite in the 1970s and 1980s, this played a very big role in the end of the Cold War as broadcast satellite became a very—in Poland especially—became something of a major conduit of information about the larger world into Poland, and I think led in large part to the mass movement of people to claim their own freedom.

And so, Václav Havel in Czechoslovakia said, "Behave as though you are free, and soon you will be." And he understood this notion of people power. And this is the same time at which Metcalfe is coming out with his law. We all know Moore's law about computing power doubling every 18 months. But Metcalfe's law is that the power of a network, including a social network is the square of the number of interconnected nodes. And so, we see a lot of these social movements emerging, which are largely about individual liberty, but with communitarian interest at the same time.

So it seems to me that the information technologies of our time now make it actually feasible to consider alternative modes of governance much closer to ideas of pure democracy. And as you note, big companies will still wield power, but it will pale next to what the robber barons kind of power they had in the 19th century or the multinationals, even just a generation or two ago. And as far as the big tech companies, where's their power really from?

If people realize the only power they have is from the commoditization of individual information, individuals will be able to wield a very considerable power over them. And even within their own ranks, we know that there are powerful movements, such as at Google, where over a thousand of their top engineers and analysts refused to be part of the Pentagon project Maven, which was about data analytics to help make drone strikes more accurate and kill fewer innocent people.

So I see the technology of our time as giving a boost to something that as you rightly note, began to emerge in the 19th century. And as someone interested in technology, it seems to me that there is a progression in our visions that ranges from telegraph to radio, to direct broadcast satellite, to the connectivity of cyberspace that is moving hand in hand with the probability and the feasibility of Noosphere building and the rise of Noopolitik as well.

DSW: Yeah. That's right, John. And I think that illustrates the theme that runs throughout all of this project, all the way into the biological realm for such things as the evolution of the nervous system, which was required for multicellularity, for example, is that basically a governance and information go hand in hand. And that an increase in scale of governance requires an increase of scale of information. Another point I'd like to make is that this bears upon the work of Elinor Ostrom and the core design principles that she identified for typically small groups managing their common pool resources.

And when you inspect those core design principles, they have to do with such things as equitable decision making, monitoring agreed upon behavior, transparency of behavior, so on and so forth. Things which comparatively easily at a small scale, but do not take place at all at a large scale until you get those

increases in information. And so you've listed some of those, in what you previously said. Basically atrocities that could take place because nobody knew about them, and now they do.

And so, it was like you couldn't implement those core design principles at a larger scale without the increases in the scale of information. And once you can, and then this governance, really, in some way self-organizes. I often avoid the use of the term self-organizing, but there is something…and the idea that the Noosphere is inevitable, the Omega point is inevitable. I usually speak against that, but there's something inevitable about these things being set in motion and increasing in scale with the consequences of that.

And it leads to something, John, that you emphasize in your paper with David, that this is going to end up being a multi-stakeholder process here. It's not going to be the case of just the nations being the ones making the decision. They're going to be all kinds of entities, nonprofits, social movements, networks.

And that's, I think, in part, what's required for the core design principles. These are like the members of the global village, basically, a diverse membership of the global village. Not just nation states, but others that are capable of acting and seeing and doing all of these things, and therefore asserting their rights, basically. So speak to us about this idea, that this multi-stakeholder…without formal governance. It's almost as if there's a level of informal governance that can take place, and then formal mechanisms of governance could build upon informal mechanisms, if I understand you correctly.

JA: Absolutely. And I think you're quite right that we're looking at, truly, a present and near future in which networks and nations are going to engage in global governance together. And it's interesting to me that in L'Apparition de L'Homme, Teilhard is writing long ago about this notion of humanity as a global network. And the man was so prescient. It's really just quite amazing. The way I look at it is in a longer view, if I may share this thought. Most of history, until about the year 1500, was of a world whose governance was entirely driven by empires.

And around 1500, the first nation states began to form as a focus of loyalty and organizing principle, and that worked pretty well. And nations and empires largely were clashing with each other. Sometimes a nation became an empire. Sometimes nations fought empires, as early Britain did against the Spanish Empire, which was a global Empire in the 16th century. But we see this and we talked about World War I a little while ago. That was really a time when the Empires dealt each other these terrible mortal blows.

And while most of the world was under colonial control in 1900, by 2000, very little of the world was under colonial control. So the nation-state seems to have won decisively in this 500-year Darwinian competition with empires. Nation-states were more effective, efficient, profitable, et cetera. But just as the empires are winking out of existence, the networks are rising. And I think the next 500 years is going to be a period in which we see the relationship between nation-states and networks unfolding.

And whether that will be conflictual, in many ways, 9/11, the attacks on America, signal that a great war between nations and networks was about to get underway. But we see also in things like the Color Revolutions, the Arab Spring, and many other social movements, and civil society movements, we see also the possibility of something of a more harmonious relationship emerging. And I think these decades now are going to set a tone for a pattern that will probably unfold over centuries, and which will emerge is ... I always go back to Teilhard saying, you can take the path to extinction or to transformation.

And my hope is, is that, and certainly, David and I in our work, express a hope that we will see transformation. And I think all reasonable people would prefer that transformative path than the one that is clearly destructive of ourselves and the planet.

We're now learning more about Venus every day. And it appears that Venus wasn't always this molten rock, but something happened to it, catastrophically, to the environment that turned it that way. Or as

we look to Mars, we know water and lakes were abundant on that planet at one point. And now, it's just a geosphere.

And so, I think there is a future, a planetary future that is in our hands. And to a great extent, the path we take will be determined in the coming decades. I do need to take a moment here that as people who are accessing this are probably going to wonder how the government puts up with someone like me. And so, I have to give a public service announcement that the views expressed are mine alone and do not represent official policy. And as long as I say that, I'm on solid ground.

DSW: Well, that's wonderful. I mean, God bless America for being that tolerant. And you're not alone, I think. One of the things that I got from your article is that a strong thread of statecraft are people that are more or less likeminded. And they really see this. Am I right about that?

JA: Absolutely. We have to remember that one of the great American strategists, Alfred Thayer Mahan, the great apostle of sea power, talked about the importance of the global commons, that great maritime highway of commerce that was going to bring prosperity throughout the world. He had an absolutely global vision. And it seems to me that that's a strand in military thought that has been repeated again and again. And one of my heroes is general and later president, Dwight Eisenhower. He made choices back when he was president.

There were plans afoot to use our nuclear advantage to strike in preventive ways against both Russia and China to keep them from becoming nuclear powers or threats. The absolutists all saw them strictly in terms of threat. And Eisenhower, in a wonderful speech in 1954, said, "I reject the idea of preventive war. We will defend ourselves. We will not destroy others." And this was profoundly, profoundly important. And of course, his farewell speech to the nation upon leaving the presidency was to caution against the power elite of a military industrial complex.

DSW: Yeah, the military industrial ...

JA: Yeah, these voices have been very important in the military, and still are. And certainly, I've been closely involved with most of the soldiers who have been at the tip of the spear of these last 20 years, our special operations community. And these are people who love peace as much as anyone on the planet and understand the futility of war, as well as anyone. And so, it is important to recognize that very often, it is from the military itself that one sees past the conflict to what the great strategist, Liddell Hart, said is the true purpose of strategy—to create an enduring and better peace. And that is something for which we all strive.