

SCIENCE OF THE NOOSPHERE

John Arquilla

with

David Sloan Wilson

David Sloan Wilson: John, welcome. Thanks so much for talking with us.

John Arquilla: Pleasure to be with you.

DSW: Most people that are inspired by Teilhard de Chardin are spiritually oriented, and that might describe you as well. But you come from a very different world of statecraft, along with your co-author, David Ronfeldt. And so, I'd like you to begin by just telling us your story as to how you acquired the profession that you did, and then how you encountered Teilhard in this very different context of strategy and statecraft.

JA: I think I'll answer that in reverse order, because I was exposed to Teilhard before I went into the military and came down this path of international security affairs as a career. But what I remember, having gone to a Catholic high school, I remember one of the readings in my French class was an excerpt from Teilhard's L'Apparition de L'Homme, the appearance of men, or better translated as the emergence of men. And that's the first time I saw the term Noosphere. This was 1968. So it was a very tumultuous time and in the appearance of men.

Teilhard, who wrote this in the middle 1950s, was pointing out that humanity had a choice between extinction and transformation. And I thought that was just such a powerful, powerful point. And as we're all old enough here to remember 1968 as a very, very turbulent moment, not just in the United States, but in France and around the world.

And it seemed to me that Teilhard offered a great hope for us and suggested that this third story that humankind brings to the world, the idea of a realm of the mind, that succeeds the geosphere, the hot rock of the earth as it was formed, and then the biosphere when life emerged. And now the true purpose of existence is manifested in the rise of humans who can create a thinking circuit around the world, this Noosphere, this third story of the world. And it offered the possibility of transformation and of creating something of great beauty and harmony, as opposed to what I remember in that same essay, he called mankind's open sore, which was the notion of constant conflict that somehow we lived in an anarchic world where people did what they would, the strong did what they would, and the weak suffered what they must.

And this always struck me as a very, very important alternative. Now, none of this stopped me from being interested in international security matters and wanting to serve my own country, but to serve in a broader sense. And so, my long path, to make it short, was eventually into business. And I began to hang out with executives who were interested in national security, but in a very hard headed way, not politically right or left, just trying to figure out right from wrong.

And so we came to believe in things like arms reductions, and ending the nuclear arms race. And so, I was instrumental. My first public writings and speaking and television appearances were in support of an initiative that in 1982, was put on the ballot in California to call for a nuclear freeze. It's not a pacifist doctrine, just the idea that both the Russians and the Americans had enough nuclear weapons, should stop building more, and then think about reducing them. And there was, at the time, a Marine Colonel, former Marine Colonel by name of Harold Willens, who kept looking over at me. I was in the bond business at the time.

And he kept looking over at me at meetings and he'd say, "Arquilla, why are you in business? You're more suited to this other area." And that led me down a path to eventually getting a doctoral fellowship, a full fellowship at Stanford. And my professor there said to me, as Willens said, "Arquilla, you're a different sort of fellow. You might not fit in well in a traditional university. Why don't you try the RAND Corporation?" The only thing I knew about RAND Corporation was from the Stanley Kubrick film of Dr. Strangelove, where they called it the Bland Corporation.

But as I found out more about RAND, I said, these are my kind of people. And so, I went there and I had the great good fortune to meet David Ronfeldt, who was thinking about the information revolution and how it would affect the way societies were organized. And I, of course, am thinking more about security. And I had been working, one of a small team of RAND analysts, who were sent to work with General Schwarzkopf during Operation Desert Shield and Desert Storm.

And in the course of that work, I realized that the information advantage that we had over the Iraqis made for the possibility of a much less destructive kind of warfare, and something that could while disrupting, disarming the enemy, allow conflicts to be brought to very swift conclusion. So I come back from that, and I read a paper David has written about an organization called Cyberocracy. And as I thought about it, thought about it, I thought, my goodness, there's all kinds of applications for military and security affairs.

So I walked over to his office and stood at the door and said, "David, I just read your wonderful paper, and I just have one word for you, cyberwar." And so, we were off to the races and wrote an article almost 30 years ago, now called "Cyberwar is Coming". And the idea behind it is from the Greek root word, kubernan, to govern or to steer. It's not just about cyberspace, but it's about the use of information to gain advantage or deeper understanding. And it doesn't necessarily mean lots of shooting war. In fact, it can mean a lot less shooting, as we point out in our original article.

So that got me going, and that led us to look beyond simple matters of social organization and armed conflict to the larger question of how the world was going to evolve. And we both realized, David also did his doctoral work at Stanford, it led us both to reexamine and realize that classical notions of realpolitik, which enshrined the whole business of hard power and the use of force when it's in one's interest, were really leading mankind down a self-destructive path.

And so, we came back to Teilhard's ideas. David was familiar with Teilhard as well, and went with this idea of the Noosphere as a foundation for what we came then to call Noopolitik, which is something based on this notion of mankind as a thinking circuit uniting the world and creating alternatives to classic power politics, which Teilhard thought, and we think is really the path to extinction rather than transformation.

So that's really the path that has led both of us for many years, and most recently in our study "Whose Story Wins", where we realize that it is the narrative, the story about any situation—whether armed conflict or diplomatic dispute or commercial interaction—it is the story about that interaction that matters as much as anything else. And the purest essence of information is contained in that narrative. And so, it seems to us the way ahead, moving from power politics to a Noopolitik is very much driven by the sense of what is our story about ourselves and the world. And I think that's one of the reasons the United States has been having so much trouble since the end of the Cold War. We lost our story.

The Cold War was a story about containment of aggression and deterrence of nuclear war. And now, we don't quite know. President Biden just recently talked about the spread of democracy. Well, that's hard. It's a certainly laudable goal, but it's hard to be consistent in its pursuit. And we're certainly not asking for a democracy in Saudi Arabia or Egypt or other places. And so, instead of worrying about things like economic structures and political regimes, to look to the larger glimpses that humanity has given of this

thinking circuit in such things as the 1948 Universal Declaration of Human Rights, the Helsinki Accords on human rights reached in 1975.

Things like the anti-personnel landmine campaign, for which a nongovernmental organization won a Nobel Prize. For groups like Greenpeace, stopping nuclear testing, even in the face of French covert operatives, blowing up their vessel in the South Pacific when they went out to protest atmospheric nuclear testing. So we hold on to those things. And at the same time, while we try to take a very positive view of this path toward transformation, we also take a fairly critical view of the dominant ideas about the world today.

The first dominant idea is that Adam Smith's notions of the laissez-faire economic market system is the ultimate evolution of economics. We don't think so. And in part, it's because if you look at problems like the environment, clearly, the market is not going to solve that. The self-interested profit motive is simply going to lead to more and more environmental degradation to the point that the planet is greatly at risk. We had a colleague at RAND in those days who later became head of the State Department policy planning staff, Francis Fukuyama.

And Frank wrote a wonderful book called *The End of History and the Last Man*. It was all about free markets and free peoples. And we felt that, actually, if you were looking at an end of history caused by those things, it was probably going to be more like extinction than transformation.

DSW: Yet he's more or less retracted that, I believe, and gone beyond his own book, in terms in his subsequent work, don't you agree?

JA: I think that if transformation is the right word, certainly, Frank has undergone a transformation in his views that I think is, in many ways, very consistent with what David and I have been arguing for. That's a very positive thing, but it seems that whether he has been converted, his ideas remain dominant among the many in decision making and policymaking. And so, we have been swimming against the stream in the 20 plus years since we advanced the idea of Noopolitik, and find that while there is certainly an institute for Noopolitik over in Russia today, of all places, and these ideas have spread among intellectuals in a number of places, in Latin America and Western Europe as well.

In the United States, we remain very, very much devoted to this older paradigm of the—certainly the free market is something. They use the notion of socialism as a branding. We're going to put this terrible brand on you as a socialist. And Noopolitik does not call for any particular economic system. What it calls for is something that's sustainable, regenerative, and equitable. The biggest problem with market economics is inequity in the world, and Noopolitik approach is very much more moving in the direction of equity.

Also, the basic ideas about the importance of story, if you understand the other story, it's going to be a lot easier to avoid getting into conflict with that other party. Too often, we have absolutist views of our opponents as purely aggressive looking for "world domination." And so, an absolutist looks at China's One Belt One Road initiative and sees a plan for global domination. Whereas someone steeped in Noopolitik looks at it and says, "ah, this is another way to knit the world together."

And as a strategist, by the way, I say, well, look, it makes no sense for China to want to try to conquer vast areas because this Belt and Road Initiative is actually highly vulnerable to disruption at great economic costs to China. So it doesn't make sense to be suspicious of it as an engine of world conquest. The point being that Noopolitik allows you to see the world through a different lens in a different way and to a different purpose.

And if David and I have contributed over the years in any meaningful way, and I think we have with the concepts of cyberwar and the notion of social swarms that can lead to revolutions, like the color revolutions or the Arab Spring, et cetera, big social movements. I think all of it can be knitted together

under the rubric of an emerging Noopolitik. But this has the opposition of all the old ways of thinking, the habits of mind and institutional interests of those who hold power in many places in the world.

And so, the movement forward with Noosphere building and the crafting of Noopolitik as a form of diplomacy in the world is something that's probably going to arise and be sustained more by mass publics and non-governmental organizations and the occasional forward-looking country.

DSW: So, John, you had so much to say there, and let me take my turn in several respects. 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 one 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 place, 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 pretty 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 live 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 refuse 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 of 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.

DSW: Well, let's talk more about the global commons, your concept of the global commons. And a point that I'd like to begin with—I think that you'll agree with it, and you can say—is the necessity of a whole earth ethic. Part of our story needs to be the recognition that it's the whole earth system that we need to be working towards. And if we don't do that, then we're not going to get there. And so, this story in my life, requires a whole earth ethic. I think that's what you mean by the global commons, but I'd love to hear more about it in your own words.

JA: Absolutely. I think that's precisely the point, is to think of ourselves as, all the seven billion of us humans as, if you will, individual cells of one great living organism. And I think that certainly was

Teilhard's view of humanity, the biosphere that grew from the geosphere. And if we don't take such a view, we risk the destruction of the biosphere. And I think many realize that there's, to some extent, denialism that's going on. But I think certainly among the scientific community, this tie, this understanding that the whole system must be seen as integral in nature.

And that, I think, is something that...it's a view that cannot be reached or sustained if your fundamental paradigm is that of realpolitik, of hard power politics. You're going to look at the high north, which is opening up more because of climate change. And you're going to see it in terms of territorial disputes and resource extraction, rather than as something that has to be treated with great, great care, lest global consequences, dire consequences unfold.

And the same, I think, Antarctica, we are a little better about being less territorially and resource competitive over the high south, if I can call Antarctica that. So we see these things. We know that the world is integral economically. 90% of the goods that people buy, enjoy, et cetera, are moved by water, and often over great, great distances. And unless this commons is treated with tremendous respect...and that means in military sphere, this commons is often talked about in terms of areas where you can deny access to others or to control.

This truly has to be seen as a shared commons if the whole world system is to continue to have any kind of economic viability. And looking at the atmosphere, that's another commons that we need to think about. Orbit, what we call outer space, which is mostly in a low Earth type orbit, it's a commons where we have a treaty that speaks against the militarization and weaponization of space. And yet the realpolitik paradigm is driving many countries toward an arms race so that they can destroy or seize satellites.

And the problem there, of course, is with the commons, is that if you begin a war in space, which would go against the treaty that we all have virtually every nation has signed, if you do this, you will create debris fields that will orbit for decades and decades and really degrade the communications of the world overall.

DSW: That's the ultimate tragedy of the commons, to have done that.

JA: Absolutely. And there's a deep commons as well in the roughly 400 fiber optic links at sea that move about 97% of all the information internationally in the world today. And yet, we have the example of Russia developing robotic mini-submarines that can go to the depths that their regular submarines can't. These things deploy from a regular submarine. And they're artificially intelligent and able to locate where these fiber optic lines are. To some extent, they have an ability to tap into them to spy, but they also have the ability to destroy them.

And it seems to me that is another of those things that's highly inimical to the interest of this notion of a whole connected Earth, of a Noosphere. And it seems to me that there is room for a kind of arms control that is behavior based, not just in terms of we're going to reduce the number of missiles. That's a structural basis of arms control. We need to move more in this area of behavior.

And we've seen, to my mind, there are examples of Noopolitik in play in arms control with things like the chemical and biological weapons conventions. Where nearly 200 countries have all agreed they won't...most of them have the capacity to build chemical or biological weapons, yet they agree not to do so. And the world has been largely free. 100 years plus ago in World War I, there was a lot of use of chemical weapons. Since then, chemical weapons used by militaries against other militaries have very, very little of that. And even just a small amount of the use of chemical weapons against civilian populations, excluding, of course, the Holocaust where they used a lot of chemicals to exterminate people.

But the fact of the matter is, there are examples, hopeful examples of behavioral-based controls, and the only way to protect the high commons, the deep commons, the freedom of the seas, and the effects economic, environmental, and strategic. The only way to do this is through Noopolitik-based form of behavioral arms control. And I think that is a central challenge for statecraft today.

DSW: Well, John, a very fundamental distinction, which I think we all know about, because it's so familiar. And it is so fundamental that we experience it in our lives, especially at a small scale, is the distinction between dominance and reputation, that there are two paths to power. One is just sheer exercise of power, and the other is to cultivate a good reputation, whereby power is bestowed upon you. And in order for reputational mechanisms to work, there's an entire apparatus that needs to be in place. It's essentially a social control apparatus.

And once again, these are things that happen relatively easily at a small scale. Although it's the signature human adaptation, the reason that our species is different from other primate species is because those mechanisms did evolve at, initially, a tiny scale, those tiny grains of thought. And then those mechanisms, again, increase in scale. So the idea, for example, that a nation might advance its interest by cultivating a good reputation, by becoming an exemplar, a light upon the world, and so on and so forth.

I mean, that's not new at all. And with your historical depth of understanding, I'd love to know how this very intuitive idea at a small scale, that an agent becomes powerful and well known and achieves high status by basically contributing to the common good is something, of course, that needs to be expanded so further. I think part of the Noosphere is to establish that, the mechanisms whereby people can succeed through cultivating a good reputation as opposed to the exercise of raw power. But what do you have to say about all of that?

JA: It's difficult to build reputation. It's very easy to lose reputation. It seems to me that's the fundamental equation. And I guess another thing I would say is that reputation is highly dependent upon a consistency between what is said and what is done. And so, let us take the example of the United States in recent decades. In 1994, President Clinton established a national security strategy that he called, based on engagement and enlargement of democracy, spreading democracy.

And of course, George W. Bush used that as a springboard for saying, we're going to invade Iraq to turn it into a democracy and that will make other democracies. Much of the rest of the world and a lot of the United States mass public and some people in defense, like me, said, that's a very terrible idea, and it is inconsistent with our declaratory beliefs about democracy. Simply because we're quite happy to work with authoritarians in Saudi Arabia and Pakistan and Egypt and elsewhere, as long as it's in our interest.

And so, reputation is ... I think the United States has sullied its own reputation. I think COVID 19, provided another of those opportunities to do some reputational repair, but vaccine nationalism has, I think, gotten in the way. Again, what I have seen has been a realpolitik answer to COVID in terms of the hoarding of vaccines to the point of them spoiling. And millions and millions of doses spoiling rather than being shared. And in a Noospheric approach, a Noopolitik approach would have, from the beginning, mobilized societal resources in all the advanced countries to create as much of these mRNAs, whatever vaccine works to create as much of these.

This is the great global challenge, and it hasn't entirely slipped away from us. We can still reverse course, and it was good to see the European Union and the United States, in particular, with President Biden suggesting the need to get a billion doses out quickly. That begins to shift the dial a little bit away from vaccine nationalism. But I think, to me, I've looked at this response and seeing, ah, this is still the persistence of realpolitik thinking. And it's terribly short sighted.

Because, well, I mean, you're a better biologist than I am. You know that biological security is integral in nature, it cannot be walled off. And if large parts of the world, if Delta spreads to the unvaccinated parts

of the world, it will make its way as well further mutations. And so, it seems to me that in this case, a Noopolitik approach to vaccine cooperation is not just an idealistic point, it's actually the most pragmatic solution. And I think this is one of the ways we're going to see the Noosphere gain more traction in the years to come, as people realize, wait a minute, this is actually the more efficient. This is actually the more effective way to operate.

But our discussion here is about reputation. And again, I think it is important to recognize that even a few missteps can destroy a good reputation that will then take decades, if not, centuries to repair. And it seems to me that is one of the greatest tragedies of American foreign policy over the last 30 years. And it's, first of all, inconsistency. And second, simply the sheer amount of suffering caused in places.

We've spent much of our military efforts in Iraq and Afghanistan and have created untold suffering in both of those countries. And to some extent, there was war contagion that then spread to Syria as well. And it puts paid to the whole fallacy about solution through military force. A lot of people, and certainly in the world I inhabit think that your reputation is cultivated by the size of your military. And what we know from history, is that big bloated militaries often don't intimidate the people who have the more innovative ways of operating.

Rome was brought down by barbarian tribes who didn't even have countries and governments. And the Mongols were outnumbered by...even though they were called Hordes, it was simply the term for a military organizational unit, the Orda. They were outnumbered in all their major battles, and yet won them all. They were not intimidated by the empires of the day. So I think that the tie of reputation to hard power measures is less and less persuasive.

And reputation building and sustaining can only be done through actions that reflect humanitarian values, that aim at the sustainment, protection of the global commons, and in seeing ourselves as part of this great global thinking circuit. And again, I don't think this is simply altruistic or idealistic. I think it is actually the most pragmatic way to move forward in statecraft.

DSW: Well, I think, John, that all of this is so scale independent, and I love taking big problems and shrinking them down to smaller problems, and then expanding them back. On what you said about reputations being easy to lose and hard to gain, and especially hard to regain, that's true at all scales. That's true for an individual as well, when they do something that smirches their reputation. But on the other hand, I think, it is possible at any scale for an agent to genuinely commit to all of this, and then walk the walk. That involves being transparent, and so on and so forth. That a reputation actually can be restored quickly.

It doesn't have to take hundreds of years or anything like that. It's based on events, basically. And it's based on walking the walk. And it's also based on how you look at it. And back to the story that when we tell the story, and we tell them with scientific authority, which we can, then we more or less capture the intellectual and scientific high ground, in which it all makes much more sense than against the background of other stories. So the narrative goes along with the action.

What I want to cover, John, two more points with you at least now, and you can please do some thinking as to whether there's some additional points we want to cover. My next point has to do with the environment and such things as biodiversity, and it's here where I think Teilhard is a little bit vague. It's hard to know where we stand. And so much of when we talk about this, including our own conversation, it's human centered and technology centered, that it's easy to lose sight of the fact that at least some people's version of the Noosphere, including my own leaves room for the rest of life.

And Teilhard has this passage in Chapter 10 of The Future Of Man when he says, he envisions a time when the entire Earth is inhabited only by people and their domesticated plants and animals. It's not clear that he wants that or that he sees that as a good thing. And in that sense, he was quite prophetic. But from our standpoint, as we work to create the Noosphere, with your scholarship, I'd like to know,

what's the full picture of what Teilhard thought about the rest of life on earth? And what should we be thinking in terms of the importance of preserving all of the wonderful life forms that have evolved over so many hundreds of millions of years.

JA: In the appearance of man, he talks about this problem as well, that most life forms have a period of flowering, of senescence, and then decay and extinction. And I think the most hopeful thing that he wrote about that is, if mankind figures out how to break that cycle for itself, it will necessarily bring other biological forms along with it and creates an ability to break the cycles of mass extinction. And so, I find him a little more hopeful on this. And in the *Future of Man*, of course, there are other biological forms there over which man is the steward.

And I think his position is largely biblically driven by the notion of stewardship, that creation is, is that mankind's role is as the steward of nature. So I see him in a somewhat more hopeful light in this area. But the fact of the matter is, we're seeing tremendous extinction of species every day, given the actions of humankind, particularly over the last two centuries of industrialization. And I think we are in a race between extinction and transformation, which is how Teilhard put the matter. So it's a near run thing, and it will only play out over time.

Much as I think reputational issues for nations will as well. I agree with you that individuals can find redemption within their lifetimes and maybe turn that around fairly quickly in terms of years or a few decades. I think the timeline for nation-states is much, much longer. And when, for example, I think about the Middle East, the very fact that the United States invaded and basically destroyed Iraq as a modern nation state when it did invade in 2003, is something that is going to tar every American action for a very, very long time to come.

And if you are to reduce the time it takes to repair a reputation, it will only be reduced if the change in behavior is absolutely radical. If the United States stopped talking about spreading democracy wherever it wanted to or that it was the steward of a new global order, a new world order, there would have to be a wholesale change in behavior if we were to shorten the timeline. But the trajectory of the United States is one in which its reputation is in very, very sad disrepair.

And the current path we're on—even with some of the more conciliatory policies internationally that President Biden is seeking to pursue—is only the beginnings of a movement back. And I come back to this point, because I think it is absolutely essential to Noosphere building and to the emergence of Noopolitik. It is ironic that the United States is, I think, among the best positioned nations in the world to foster this perspective, this movement, and actually to accelerate the progress of humanity in this direction. And yet its actions have done most to actually retard and reverse progress that that has been made. And I find that a real tragic irony of American power in the world.

DSW: You mentioned Switzerland as an exemplar, what about the Nordic nations or any other nations, which you think are basically better exemplars of Noopolitik?

JA: Well, I think the Swiss goes back to our point about governance. And they have shown that with the technology of our time, pure democracy, as opposed to necessarily representative or republicanism is a viable option. One sees a little more movement in that direction in the Scandinavian countries. But again, I speak to California as a place where they really are trying to do a lot of pure democratic processes. I think the Scandinavian countries are especially attuned to issues of the global commons, Norway, in particular, global maritime commercial power.

But also, they're all tied to the high north and understanding how this affects strategic affairs across the number of great powers. Even China says it has a role up in the Arctic. This is a great area of competition, but it also, as the Scandinavian countries, the Nordic countries have noted is an area where one of the first great examples of global cooperation could come into play with protection of the environment of the high north, which then will have effects, beneficial effects on the whole planet.

And if we lose the high north, we will lose a lot of the littoral areas, the coastal areas of the world, including places like Miami and such. And so, the other point about the Nordic countries is that they are much more attuned to communitarian values. And so, there is something very interesting afoot there. I'm glad you brought them up. I think they're natural players in Noopolitik.

DSW: Yeah, we've said quite a bit about that. We've studied Norway at the Evolution Institute for a long time. And one point to be made, back to power, is that it's a very common social dynamic at all scales, that it's the less powerful agents of a community that base our actions on reputation, because they don't have an alternative. I mean, if they're a relatively minor player on the world stage, what other choice do you have and then do you basically cultivate a good reputation and so on and so forth? The realpolitik option is really not available to you.

Or you could even say that about early Christianity, and so on. So there are some very general principles at play as to who endorses reputational mechanisms and so on. Well, John, one more major point, unless Ellen has more to add, that Teilhard's vision, which was so amazingly ahead of its time, there's passages and moments in his writing, which I think unsurprisingly, because you cannot judge past figures purely by modern sensibilities, where he wrote some things about such things as eugenics and so on, which would be troubling.

I mean, maybe troubling back then, or certainly troubling now against the background of modern sensibility. And so, I wonder if you could speak to that as someone who dug pretty deeply and do, and demand and at times as to how we ... What actually, you said along those lines in how we should react to it in the present day.

JA: Well, I don't think that Teilhard's views on genetics were Darwinian in nature. I think, if I recall correctly, he spoke to this as one of the uses of science to improve humanity, the health sustainability. Remember, at the time he's writing and thinking about these things, human lifespans are something like half of what they are today. And so, I think the length and quality of life was something ... He's a very spiritual man, but very rooted in the world as well. And here, I think he's prescient also in terms of our understanding of the genetic triggers of disease.

What's mRNA? Really, it's at an almost a genetic level dealing with the COVID disease. And so, I think, and I'm not trying to be an apologist for Teilhard or to take his ideas out of time, but I think he was referring to this in terms of the improvement of the quality of life. And in that respect, what we see going on today with gene therapies and the various other uses of genetic approaches to the reduction of the severity, and even the presence of some diseases, is really quite remarkable, quite revolutionary.

And I hope and think that this is something that, if explored fully, and again, I'm not a biologist or a geneticist, but I think the applications beyond humankind to the other life forms is ... and not just for agribusiness, but for the quality of biodiversity that our world needs. It seems to me, this is one of those frontiers that needs careful exploration. And I'll take the view that Teilhard is simply pointing to that as another of those powerfully important areas of inquiry.

DSW: Yeah. The way I put it, John, is the whole concept of a paradigm shift is what we need to do is really different. And that's surfaced several times in our conversation very, very different than what we're doing now. But if there actually is a new paradigm, then that new thing can become common sense, not hard to understand at all. So I think that's what it means for there to be a true paradigm shift. Well, there's some versions of the Noosphere, at least there's some versions of large scale collective society that many of us don't want.

Certainly, we don't want what Nazi Germany represented. Many of us don't want what China represents, maybe, although you might have greater knowledge on that score than I. So how did Teilhard distinguish between his conception of the Noosphere and something like Nazi Germany, which, of course, was something he lived through? And how do we proceed, given forms of large scale collective society which

is not democratic and which is highly manipulative and controlling and so on. So how would you address that issue?

JA: Well, I know that Teilhard had faith that the light would overcome the darkness of fascism. Of course, communism was still in full flower at the time of his death in 1955, but I'm positive in my own mind that he felt that the light would ultimately prevail. Vernadsky, of course, came out of a Soviet system, was more attuned to the idea of this cataclysmic clash. And we know it from scriptural readings, there's an Armageddon in Christian theology, as well as an ultimate climactic civilizational battle in Muslim theology as well.

And, of course, in the Indian sacred texts, there are these cataclysmic struggles described in the Mahabharata and such. And so, the question is, whether this cycle will be repeated and in increasingly destructive ways or whether the cycle can be broken. And that is the challenge. And for David Ronfeldt and me, the cycle will not be broken if we remain within the realpolitik paradigm. That's not to say that Noopolitik does away with these tensions. Noopolitik exists and competes with realpolitik.

And so, Vernadsky and Le Roy and Teilhard all anticipate the possibility of this Titanic clash between the two. And I think we're seeing some of that underway in the world today already. I prefer to see in the rise of civil society, of the efforts to build and sustain a global commons, and even in the system in which I inhabit many believe in the importance of the global commons and the need that the American role is in many ways to help build that, and to increase the practices of commoning throughout the world.

And I think that's a much better and more Noospheric type task than trying to spread democracy. I have to tell you that governance systems mean a lot less to me. What matters are the larger questions of the quality of human life and the protection of rights. And I think that even in a democracy like the United States, there are questions about human rights underway. George Floyd is a sort of avatar of that question and the movement to help resolve that question.

And so, I really think we have to live in a world as it is and respect that the currents of culture and history cannot and should not be altered by an armed force, and can only be better understood and dealt with on the basis of a Noopolitik approach that is designed to identify common—across regime types of governance—common interests of humanity. And we see this in areas like arms control, both structural nuclear and behavior based, chemical and biological. We see it in the worldwide revulsion toward terrorism.

We see it in many different ways with the rise of humanitarian assistance and disaster relief. So let's consider those all poking holes in the darkness and creating more room for light. And again, it took 500 years for the nation—state to supplant the empire. I think it's probably going to take 500 years for the noospherically-oriented social networks, if not to supplant at least to transform the nature of governance under nation-state structures. But I think what we view as today's nation states will probably be much loosened as a form of governance in the coming centuries.

And if anything, what Teilhard leaves me with the most is the sense of having to see ourselves as individuals cells in an organism that's now comprised of seven billion of us. We are stewards. We have a responsibility to both the geosphere and the biosphere that we must undertake and we will be replaced by other cells. And hopefully, if not our genes, at least our memes, our ideas can be transmitted to those new cells in that living, thinking circuit, and will not only propagate, but will increase.

Robert Axelrod did a wonderful study many years ago called *The Evolution of Cooperation*. And indeed, he uses biology as a leading metaphor in his work. And what he found is that even small areas of cooperative behavior tended in an evolutionary sense, and he was able to do this through computer runs of simulated systems, even small areas of cooperation were able to crowd out the darker, more conflictual systems over time. And I think, we three are unlikely, and those living in the world now are unlikely to see the endpoint. But Teilhard was one who believed in the telos, the end of humanity, the

purpose in it. And that great purpose is to avoid the patterns of extinction, and really to instantiate the pattern of transformation.

DSW: Well, John, that's a great note to end on. And as for my own ending, I'm a great believer in the concept of catalysis for rates of cultural change, in addition to rates of chemical change. And so, how long this will take in an optimistic stance need not take centuries. I think, actually, it could actually take place very substantially within our lifetimes if you really appreciate the concept of catalysis and apply it to rates of cultural evolution. But of course, time will tell. So I think that this has been a wonderful conversation, John.

And I'm so happy that we've captured it, and that we can make this widely, widely available. And your work is so brilliant, along with David Ronfeldt. And so, I'm so happy that you filled out this dimension of Teilhard and the direction of pragmatic statecraft. The only thing that makes sense against the background of the correct stories. So thank you, John.

JA: It's been a great pleasure. And I will light a candle and say a prayer that you're right about the timeline of transformation. It would be lovely, lovely to see it.