Lesley Newson and Peter Richerson with David Sloan Wilson, Part Two

David Sloan Wilson: Yeah. So we've already segued in the direction I want to go, which is the mental cognitive component of all of this. How did this reflect itself, manifest itself as our distinctive human cognition? And, just to put my own view on for you to comment upon, I often refer to it as the cooperation came first hypothesis. First, we became very cooperative and then that cooperation took on both physical and mental forms, but just about everything that's mentally distinctive about our species is a form of cooperation. So cooperation came first, and then a distinctive and a distinctively cooperative form of mentality emerged. Of course, that includes the capacity for symbolic thought and language as one kind of symbolic thought. So, as you talk about your own understanding of this, please comment on the cooperation came first hypothesis. Lesley, why don't you go first, and then Pete?

Lesley Newson: Well, I think that as soon as people started raising children together, that was a huge step on the road to cooperation, right? You passed on your genes to your child, to your own genetic child, but there were other children, too, that you were giving everything that was necessary for them to become an adult. I mean, what could be more cooperative than that? And, yeah, I think absolutely, it came first.

A good question is though, meerkats are really, really cooperative. How come they're not like us in other regards? And I guess it's because they're not cultural, not as cultural, not as capable of having complex culture that can shoot them forward. So yeah, I think cooperation came first, but something else came after.

DSW: Yeah. Well, the capacity for culture. So Peter, go ahead and carry the baton here.

Peter Richerson: Well, I'm a heretic in this discussion, I guess. So I think that the changes in the brain are largely, in terms of cooperation, are largely emotional, not cognitive, if that is a proper distinction. The neurobiologist, Cecilia Hayes, I don't know if you know her work, David. She argues that cognition is built by experience and by culture. That the neocortex, to make a crude story about it, is culturally constructed. There's no genes involved. But then, the mechanism by which it is constructed has a lot to do with reinforcement, and reinforcement is generated by the emotional circuits. So a neurobiologist by the name of Jak Panksepp had this idea that there are, I think he described about six or seven, emotional circuits that are highly conserved in mammals and can be investigated in things like rats. And humans have the same basic emotional structure as rats.

Now, the differences are twofold. One is that evolution can modulate these emotion centers and the most conspicuous modulation of the emotional centers—in humans, compared to most other mammals—is that we're really tame. We're really not nearly as aggressive as most other mammals.

DSW: This is the self-domestication hypothesis.

PR: This is closely related to the self-domestication hypothesis. Exactly. Rob and I called it a different thing. We called it the social emotions, so modulation of the social emotions. This goes back to Darwin's idea that humans had these emotions like empathy and patriotism that were much stronger than other animals, so we could develop these tribal-scale social systems. And then the other biological differences that we have this huge cortex that is built, in developmental time, by learning and social learning. This is an idea that goes back, as far as my reading goes, to Gerald Edelman, who wrote a book on, he called it neural Darwinism back in the mid-eighties. He was a kind of a friend of mine, or a patron of mine I guess would be more accurate. And so he had this idea that there just aren't anywhere near enough genes to specify in detail how the cortex works. At best, genes can form a rough anatomical map. And then all of the actual circuitry has to be generated by these developmental processes. If this is true, the cognitive revolution was barking up the wrong tree. At least in terms of the direction evolutionary psychologists

talk about. They were looking under the wrong rock. It's the emotional side of cognition, or the emotional side of the brain, that was modified genetically, and of course the size of the cortex.

LN: Can I just say something else, about the emotional side, as well as humans being so tame, is our incredible ability to bond with almost anything. Chimps, there's this really strong bond between mothers and infants. In some organisms, there's also a really strong bond between mated pairs. In humans, strong bonds pop up on a long distance airplane journey. We can be bonded with our phone. We're just really promiscuous bonders. If bonding is an emotion, or involves a lot of emotions, that's really important for us.

DSW: Absolutely. To emphasize these points, I don't think forecloses other points. There's a whole piece that we could spend on evolutionary psychology, its merits and demerits, but I actually want to go in a different direction. And that is the idea of conscious evolution, consciousness, conscious intentions. One of the things that really strikes me about human cultural evolution, is how much it is driven by intentions. Most recently, I had a conversation with Josiah Ober on the classical Greek period. The emergence of democracy and how much all the elements of democracy were basically...they were just setting about to build a democratic city state. That was their explicit objective.

The idea of consciousness, and directing all of this, is part of the story. It doesn't deny everything we just said about emotions, and so on, but somewhere along the line... In fact this is by no means merely human. All kinds of non-human species, of course, have their own forms of the Baldwin effect, in terms of directed learning, and so on and so forth. Let's speak a little bit about conscious intentions and things like that. That gives an intentional aspect or what people strive to do, and therefore directing evolutionary processes, genetic and cultural.

LN: Going back to what I was saying about bonding, you can see all kinds of intentions, in trying to create bonds between people, or bonding people to a country. The Star-Spangled Banner, that we love our flag. We have this anthem, and it makes everybody cry. There's a huge amount of intention in that. Just the invention of a social tool, the sentimentality, and that kind of thing. We do that all the time, to try to get people to pull together. Is that, is that the sort of thing you're talking about David?

DSW: I think so. I think so. Pete, do you want to add to that?

PR: Yeah. Going back to Darwin, in addition to a natural selection, he described sexual selection, and artificial selection. The latter two are agent-based processes. In the case of female choice, sexual selection, females choose their mate in the classic model, and therefore they affect evolution. They affect the evolution of secondary sexual characteristics in Darwin's classic formulation. In the case of artificial selection, dog breeders, for example. Darwin was a dog fancier, and wrote about pigeons, and dogs, and other domestic animals, that humans had deliberately created morphology and behavior in these animals. In the case of cultural evolution, it seems to me the classic forces of cultural evolution are agent-based forces. Natural selection can operate on cultural variation, as well as it can operate on genetic variation. But in addition, we have what Rob and I call guided variation. Basically, individual learning, plus social transmission of variants, that are learned socially. It's sort of a classic inheritance of acquired variation process.

And that’s agentic, right? People invent stuff because they think it will help them to make a living. And similarly, what we call the bias forces, where people selectively adopt cultural variants that are out there in their social networks. That's also an agent-based process. One of the problems with the modern synthesis, it seems to me, is it downplays those kinds of forces in favor of natural selection on random variation. Cultural evolution is fundamentally different. Well, it's not fundamentally different. It's quantitatively different, from genetic evolution, in the relative importance of these agent-based forces. I think that emphasis on that point is what you were pointing to.

DSW: Yeah. It makes you realize how much the modern synthesis was a constriction of thinking around Mendelian genetics. Even leaving out such things as the Baldwin effect, which was known at the time, but didn't make it in there. We're recovering from that, we're in recovery from the modern synthesis. I'm so amused by the controversy about the term extended evolutionary synthesis. That term, which is judicious term, what could be more modest than that? There's still many of my colleagues, in evolutionary biology, that say, "How dare you call this the extended synthesis?" When, in fact, it's more than that. The whole return of agency and consciousness. The idea of evolution as can be consciously driven, which has only commonsensical, in retrospect, when you start bringing in such things as artificial selection, and sexual selection and all of that. It's just commonsensical, in retrospect.

I want to bring in, it's not really new, but just to bring in Pierre Teilhard de Chardin a little bit, he had this provocative phrase where he said, "Consciousness is evolution reflecting upon itself." I think, "You know, actually that's pretty good." What exactly does that mean? When you think of what's going on inside the head with such things, as scenario planning, and storytelling, and so on, really is variation and selection process going on internally, which then gets played out externally. So the idea of consciousness being a kind of an evolutionary process, yet another evolutionary process, built by another evolutionary process, just the way cultural evolution is an evolutionary process, built by genetic evolution. What do you think about the idea of consciousness as evolution and reflecting upon itself?

PR: Seems a bit metaphysical to me, but never mind. Consciousness is an interesting concept. It intrigues a lot of people. My take on consciousness, I got from this neurobiologist Merlin Donald. I don't know if you know him or his work, David, but he said, "Well, consciousness, we know all about consciousness. Every night, we're unconscious, and every day we're conscious. So it is with every other organism we know very much about. Sometimes they're conscious, and sometimes they're unconscious. It's not a very mysterious concept, really." The metaphysicians have reified it into something that is terribly abstract, and self-important.

DSW:Lesley. Lesley, what do you... Then I have another chapter to bring into our conversation.

LN: It seems to me the whole consciousness thing seems like such a hard problem. I don't even know if other people are conscious. It goes back to that, really. Other people do stuff. It's very hard. We don't just reflect on our evolution, but we're fascinated, or some of us are, by how our mountains moved and grew. In our single lifetime, we can learn about the lifetime of the whole planet. We can speculate about the future, when the sun becomes a big red giant, and swallows the earth. It's extraordinary that we can sit in the middle of this time, and see the whole universe. I find it too amazing to think about. I find it extraordinary that a lot of people aren't even interested in this. Other people don't do science. How is that possible, David?

DSW: They're narrowly adapted to their environments, I think.