What Happens Next – Sunday April 11, 2021
Autism, Storytelling, Social Injustice, Diversity and Boards, European Politics
Simon Baron Cohen

Larry Bernstein: Let's begin with Simon Baron Cohen from Cambridge to discuss autism.

Simon Baron-Cohen: Thanks Larry. So as you mentioned, my new book, The Pattern Seekers, it looks at a big question, which is whether there's a link between autism, the disability, and the capacity for invention. And in the book, I lay out the evidence that shows that there are links. But today I'm going to start with the question of when did invention begin? Because it's very clear that our ancestors, even two million years ago could invent simple stone tools like axes and hammers. But for millions of years, there was very little evidence for what I call generative invention. That is the ability to invent in multiple ways, not just as a one-off.

But then about 70,000 to 100,000 years ago, when Homo sapiens were on the scene, the rate of invention suddenly took off. Suddenly we see the capacity for generative invention. And I argue that's because a cognitive revolution had occurred in the human brain. In particular, there was a new circuit in the human brain that I call the systemizing mechanism. And what this allowed was for human to look at special patterns in the world. I call them if, and, then patterns. That if I take something, and I do something to it, then I get a particular outcome. So what the systemizing mechanism allowed us to do was to find the pattern. And then we could vary the pattern by experimenting with the if or the and. And when we produce a new pattern, basically that's an invention. And this was the kind of algorithm in the brain that allowed invention to be generative or unstoppable.

We know that there's systemizing mechanism within the human brain 70,000 years ago, because if we look in the archeological record, we see artifacts like the first bow and arrow. So our ancestor who made the bow and arrow was using this if, and, then algorithm. If I attach an arrow to a stretchy fiber and release the tension in the fiber, then the arrow will fly. But if I attach the arrow and pull the fiber back further, then the arrow will fly further. So humans were experimenting and inventing.

And just to take one out the example. 40,000 years ago, we see the earliest musical instrument that's ever been found, which was a flute made from a hollow bone from a bird. And this ancestor who made it, again, was using if, and, then logic. If I blow down the hollow bone and cover one hole, then it makes a specific sound. But if I blow down the

bone and cover two holes, then it makes a different sound. So again, we can see humans were experimenting and inventing.

But back to the big question, is there a link between autism and this capacity for invention? Well, in our research, we've looked at over half a million people in the general population and found that those people who work in STEM, science, technology, engineering, or math, have on average more autistic traits than those who do not work in STEM. So this shows the clear link between our aptitude and understanding systems and a higher level of autistic traits.

We've also looked at 36,000 autistic people, again, it's a very large online study, and found that they score higher on systemizing. That they are, what I call, hyper-systemizers, strongly attracted to understand how systems work. And then we've gone on to ask the question, is the link between autism and systemizing genetic? So we asked 56,000 people to give us a DNA sample. And we found that the genetic variants associated with being a strong systemizer overlap with the genetic variants associated with autism. So what this is telling us is that some of the genes that cause autism also cause talent in systemizing or pattern recognition.

So this led us to a prediction that autism might be more common in places like Silicon Valley. Well, as you can hear from my accent, I live a long way away from the Silicon Valley. So we went to test this in the Dutch city of Eindhoven, which is the Silicon Valley of the Netherlands. What we found was that autism rates were twice as high in Eindhoven compared to two other Dutch cities that were not IT hubs. So again, this is consistent with a genetic link between autism in the child and a talent in pattern seeking in their parents. So I think I've shown you, we've got lots of evidence that the genes for autism have been driving human invention for at least 70,000 to 100,000 years.