

Ask A Genius 102 – Other Minds and Octopi¹
Scott Douglas Jacobsen & Rick Rosner
February 27, 2017

[Beginning of recorded material]

Scott Jacobsen: You were describing a book a little bit off tape.

Rick Rosner: It is called *Other Minds: The Octopus, the Sea, and the Deep Origins of Consciousness* by Peter Godfrey-Smith. This guy has spent a lot of time thinking about consciousness and observing octopi, which are pretty smart. They have 500 million neurons compared to our 100 billion neurons. Quite a few less, but still enough to have fairly sophisticated behavior.

I quite eating octopi because they seemed too smart to eat, which is dumb because pigs are smart too and I'll eat them. The thing I think is interesting is Octopuses became really smart independent of us, not as part of our line of evolution because our last common ancestor with octopuses was hundreds of millions of years ago. Our last common ancestor was some little worm that was a few millimeters long and couldn't be thought of as doing much thinking at all.

It was a dumb little worm. Then our evolutionary track, we got really smart over the next half of a billion years, so did octopuses, but independently from us. Which means that brains—octopuses, there are all of these stories that if they don't like you then they'll squirt a jet of water at the back of your neck. They know how to unscrew jars. They know how to squirt water at light bulbs because they don't like bright lights.

Some are nice. Some are dick-ish. They, maybe, do a kind of art, but they like arranging things on the sea floor in pleasing patterns. Stuff that indicates smart-ish behavior. It grew, not as part of a ladder to us, as a separate ladder than us. You can say intelligence developed at least twice. Two separate instances, you might be able to say birds. I don't know if birds are smarter than dinosaurs or birds are smart because dinosaurs were smart.

¹ Four format points for the session article:

1. Bold text following and including "Scott Jacobsen:" or "S:" is Scott & non-bold text following and including "Rick Rosner:" or "R:" is Rick.
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3. Footnotes & in-text citations in the interview & references after the interview.
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For further information on the formatting guidelines incorporated into this document, please see the following documents:

1. American Psychological Association. (2010). Citation Guide: APA. Retrieved from <http://www.lib.sfu.ca/system/files/28281/APA6CitationGuideSFUv3.pdf>.
2. Humble, A. (n.d.). Guide to Transcribing. Retrieved from <http://www.msvu.ca/site/media/msvu/Transcription%20Guide.pdf>.

Maybe, birds became smart in their own line. I argue the more times a thing independent evolves on Earth, then the more likely that thing will evolve in organisms on other planets, like eyes. Eyes seem to originate a lot. There's a thing they call a teleological gradient, which is deceptive because teleology says something is designing us. You could call it the riches of existence. Basically, the world is a place where there are bread crumbs scattered around.

Like a video game, there are pieces of treasure around. With these pieces of treasure, you can earn these pieces of treasure by evolving to certain levels of sophistication or skill at existing in an environment. Though that involves a certain teleology, but saying it is random bread crumbs spread around. Things will evolve if there is a pathway for things to evolve. If there are physical structures that are possible, that can exist. For instance, it would be helpful to evolve the ability to time travel or have anti-gravity.

But you can't evolve that because those things, as far as we know, aren't physically possible. But eyes are physically possible, and are helpful. Every step from light sensitive spots on your skin all the way to fully developed eyes are helpful. There's a nice path of helpfulness, and it's physically possible to evolve those things, then it seems those things will evolve often in more than one organism.

Means of locomotion, various means of locomotion have evolved numerous times. The one thing that it is hard to know whether it evolved more than once is life itself, whether life originated on Earth more than once. It is hard to know because life originated billions of years ago, and it originated in forms that don't leave evidence behind. Even if this junk did leave fossils, not much got left because that's enough time for the Earth's surface to be recycled a bunch of times.

You have to find a place that has been floating away from clefts in the tectonic plates for a long, long time. And life as we know it originated closed out opportunities for other life to arise once it took hold and started changing the Earth's physical environment and spitting out oxygen, and proliferating all over the place. Other possible forms of life just kind of—that opportunity was lost, though we do kinda know life went from single cellular to multicellular more than once.

You have plants. You have animals. You have a few other kingdoms, which, I think, reflect a couple other times when life went from single to multicellular. If you want to go to the Drake Equation or a Drake type of thinking, the Drake Equation is this deal that combines all of the probabilities for all of the necessary ingredients for life originated someplace else and combines them into one equation.

One thing you need are planets in places where you can get enough chemical activity for life to evolve. You don't get good chemistry in a Mercury-type orbit too close to the Sun. You don't get it too, too far away from the Sun. But in the last 5, 10, years, we've seen that part of the Drake Equation. Whatever he originally calculated has been blown away because it looks like the number of planets in the universe might be equal to the number of stars.

There seems to be at least one planet per star, which means that there's close to that number of planets, in terms of the exponent you hang on it, in temperate regions—in that zone that permits life. The Earth orbit, perhaps Mars orbit, that distance from a star. So you can have things are

warm enough for chemical activity, but not too warm. So that part of the Drake Equation is richly satisfying.

Looking at how often the various steps in life have originated on Earth, it makes a good argument that if life originates at all. It has a fair chance of getting fairly fancy because of the treasures of existence. That the advantages to be had by taking the next steps in evolution, even though those steps aren't designed, are permitted because they have given an advantage. There's advantage in perception, in mobility.

The main bottleneck to being fairly convinced of life elsewhere is that first step of life originating at all. Once you get life, and looking at the history of life on Earth, it's not unreasonable to imagine that life will evolve to take advantage of increased complexity over, and over, again throughout the universe.

[End of recorded material]

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