Ask A Genius 75 – The Soul and Consciousness (6)
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Scott: By the way, any disclaimers? Some see these as the two most foundational and important ideas in their lives, secular or religious, e.g. in their tacit moral system such as Peter Singer's (secular utilitarianism) or about half of the world's with Judeo-Christian-Islamic theological ethics (religious variations of the Golden Rule ethic).

Rick: I'm not super qualified to talk about the soul because I haven't done a lot of reading on various definitions or characterizations of the soul. I am assuming those characterizations.

I don't believe in the soul as a divinely bestowed spark, which transcends your biological life as some thread – some people believe in reincarnation – that goes from one person to another or one person to an animal.

Something that ties people and animals in a string that goes from life to life to life. I don't believe in that. Unless, there's a technological means of that happening.

Scott: Does this perspective make the human organism in essence biological technology?

Rick: Yes. 50 years ago, it was a fairly popular minority point of view that the body was a machine. The heart is a pump. The lungs are bellows. A sophisticated machine, that's overly reductive in a lot of ways, but particularly with regard to consciousness.

In that, it allowed people to gloss over whatever consciousness is, by saying, "You can do the same things with a bunch of IBM punch cards. If you had enough punch cards in a big Univac computer, you could pretty much do whatever it is we're doing, and so let's not think about it."

The idea of humans and animals as machines let's people dance around true complexities of organic life. At the same time, 50 years after that attitude, you could circle around to something like it by saying that human and animal life will ultimately be explainable via physical processes, biological and chemical processes, which themselves boil down to processes in physics.

I subscribe to that point of view. Although, I think consciousness is this actual thing. This emergent property associated with information-sharing among sub-systems in brains. So, we are biological technology, except technology as we think about it today doesn't have the maximal feedback – the huge number of interacting feedback systems – that biological beings have.

As evolved beings, we evolved for every possible easy informational pathway among the bodies systems to be exploited. Evolution takes advantage of anything that can easily originate. Some things that are tougher to originate too.

Things like eyes. Intelligent design people like to hold up eyes as things too complicated to come about by chance, but eyes originate a lot. I'm sure somebody who is a competent evolutionary

biologist could indicate various examples of where eyes have evolved independent of one another.

Scott: There are lots of examples. Some things have dozens of independent evolutions.

Rick: Things that have an easy pathway to come into being. Evolution finds those pathways. Spreading out to cover the pathways of possibility through random mutation and, I suspect, organisms' exploitations of behavioural niches, organisms can find off-market uses for claws and whatever other things they have.

As long as those off-market uses are hard to find for animals that aren't the smartest things in the world, once off-market uses are found, mutations that favor those uses will be themselves favored. So, you have innovating bound by their brains and bodies, often becoming locked in via genetic changes.

These favor the beings who have the mutations that work better with the off-market uses that they've found for their bodies. You have random mutations being exploitable. Also, you have organisms that don't always stick to standard behavioral repertoires and end up having quirky behaviors.

That may become more and more built-in via the organisms that are better suited to do the quirky behaviors, survival enhancing quirky behaviors. They do them better and better until they aren't quirky until they have a genetic basis in the organism.

That skirts the whole area of all of the junk DNA that can function as a library of possible other stuff or abilities that, maybe, we could have. When people think of mutations, they think of one gene going bad, then you get an organism with double the muscle.

That's one. You can search online for super muscular dogs, bulls, and people. There's a mutation that knocks out some hormone or some dang thing that blocks the expression of muscle. So, occasionally, you will see something with this mutation, e.g. a baby that looks like Superman or this dog that looks like a crazy anatomical chart of a pit bull because it allows it to grow a crazy amounts of muscle.

When people think of a mutation, they think of a spot mutation like that. It generally doesn't have such great results as creating super babies or super dogs. It gives you something else like Down Syndrome. Then there are other mutations.

These can actually let larger chunks of genetics become expressed. Usually, it is with disastrous effects such as still-born things. The whole idea that there are big chunks of genes that can be moved in and out of functionality.

I'm sure that also makes evolution more complicated than we're used to normally thinking about. When people think of biology, they think of technologically smaller things. People think of biological systems as you would think of a clock.

The teeniest gears to form sub-assemblies that all come together to form the overall organism in a hierarchy with small things being built up to bigger things like organs and being used to create bigger things like the organism.

I know one guy – my buddy, Chris – who is working on a project to figure out all of the feedback loops in human biology. They're all over the place. Unlike with a clock, where everything feeds forward, the gears form in one way to form a sub-assembly and then into something like a clock, so something not very flexible.

In evolution, everything that easily originated and was helpful ended up being incorporated into humans and animals creating all sorts of complicated systems that are hard to root out. If you drew a diagram of all of the feedback systems, you'd end up with a thing that looks like a hairball or one of those maps of the Internet with the millions of curved red lines.

Or the maps of every route flown by an airline, except the airline flies to 50,000 cities rather than 300 cities. Lots of loops and arrows all over the place, which is a trans-technological thing. It is a way of doing things that goes beyond technology because technology as we build it for ourselves is pretty block-by-block and feeding forward, and not a lot of feeding back.

Although, the next era of technology and information processing will involve greater and greater amounts of feedback. The understanding of how greater and greater amounts of feedback work in practice. We'll move into the era of big, complicated, unwieldy science and understanding.

Because, right now, we like a nice equation. The most simple famous equation now is $E=mc^2$. It is simple as hell. There are processes in the world that require a dozen different feedback loops all functioning together.

With a dozen feedback loops, that's 66 handshakes among the 12 different nodes. If every different handshake is described by an equation, that's dozens of equations to describe some feedback system.

We, and our computing devices, are moving into a future where we'll be better able to understand and exploit massively complicated systems. Systems based on massive feedback, which is a different kind of technology.

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