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What Animals Think & Feel **The Rev. Dr. J. Carl Gregg**

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2,500 years ago, a Greek philosopher named Protagoras (c. 490 – c. 420 BCE) declared that “**Man is the measure of all things**” (Safina 20). On one hand, it is understandable that we humans have often declared that—surprise!—*we* are the best universal standard. On the other hand, a human-centric worldview was easier to defend intellectually two-and-a-half millennia ago: *before* Copernicus showed us that we humans are not at the center of the universe, but merely on the third rock from the sun; *before* Darwin showed us that we humans are not a little lower than the angels, but merely a little higher than the apes.

As this debate about the central importance of humanity continued, in the 1600s a French philosopher named René Descartes (1596-1650) said, “**The reason animals do not speak as we do is not that they lack the organs but that they have no thoughts.**” From a dissenting point of view, a few decades later, Descartes’ fellow Frenchman Voltaire spoke as derisively about Descartes’ views as Descartes had spoken about animals:

What a pitiful, what a sorry thing to have said that animals are machines bereft of understanding and feelings. Is it because I speak to you, that you judge that I have feeling, memory, ideas? Well, I do not speak to you; you see me going home looking disconsolate, seeking a paper anxiously, opening the desk where I remember having shut it, finding it, reading it joyfully. You judge that I have experienced the feeling of distress and that of pleasure, that I have memory and understanding. Bring the same judgment to bear on this dog which has lost its

master, which has sought him on every road with sorrowful cries, which enters the house agitated, uneasy, which goes up the stairs, from room to room, which at last finds in his study the master it loves, and which shows him its joy by its cries of delight, by its leaps, by its caresses. (Safina 79-80)

If you have lived in close proximity to animals, I suspect you could tell similar stories of having some sense of what animals think and feel. My dogs, for example, have different barks for when they want to be fed or let outside compared to when they are trying to scare away a fearsome postal worker. Similarly, I'm pretty sure my cat is trying to tell me he is losing his patience when I wait too late to feed him, he looks me dead in the eyes, and—bam!—deliberately sticks his paw out to knock over the gate that keeps the dogs out of the cat's room.

It seems obvious to me that animals think and feel, but there have been serious debates over the past millennia about precisely that issue. So I would like to invite us to explore some of what scientists has been learning about what we can and can't know about animal thinking and feeling. If you are interested in learning more, my exploration of this topic was inspired by the excellent book **Beyond Words: What Animals Think and Feel** by the ecologist Carl Safina, who is a professor at Stony Brook University.

As we proceed, a crucial point to keep in mind is the challenge we have been facing since 1859, when Darwin's published *On the Origin of Species by Means of Natural Selection*: **we humans are animals too**. We are part of the Animal Kingdom. And as Darwin wrote later in his 1871 book *The Descent of Man*, "Everyone has heard of the dog suffering under vivisection, who licked the hand of the operator. This man, unless the operation was fully justified by an increase of our knowledge, or unless he had a heart of stone, must have felt remorse to the last hour of his life." Darwin later added: "**Animals, whom we have made our slaves, we do not like to consider our equal**" (Safina 80).

Now, I will readily allow that I do not think Darwin was saying that all animals are equal in their capacity to think and feel, but he *was* challenging us to consider that the differences between us and our fellow animals is rather more one of *degree* than of kind. **There is a spectrum of thinking and feeling—and we are on it along with our fellow animal species.**

If you will allow me to stay with Darwin for just one more moment, the extent to which that spectrum is the case may become more obvious if we stretch our perspective beyond animals to include plants. Less than two years before Darwin's death in 1882, he published a book on *The Power of Movement in Plants* in which he concluded that, **"It is hardly an exaggeration to say that the tip of the radical [root]...acts like the brain of one of the lower animals...receiving impression from the sense organs and directing the several movements"** (Safina 24). So it is not surprising that all of life is on a spectrum of thinking and feeling because all of life can be traced back to a common ancestor on the evolutionary **"tree of life."**

We are part of a 13.8 billion year old "Universe Story." This planet on which we find ourselves formed around 4.5 billion years ago. And life originated here on Earth approximately 3.8 billion years ago. But even when life began, there was still an extremely long time when that life was merely "single-celled organisms in the sea." The first members of the Animal Kingdom emerged from the evolutionary tree of life "perhaps a billion years ago, but probably some time after that" (Godfrey-Smith 15). **"For any pair of animals alive now (you and a bird, you and a fish, a bird and a fish), we can trace two lines of descent down the tree until they meet in a common ancestor, an ancestor of both....** In the case of humans and chimps, we reach a common ancestor very quickly, living about six million years ago. For very different pairs of animals—humans and beetles, say—we have to trace the lines further down" (Godfrey-Smith 7). Moreover, we now know today **that at the DNA level, there is only a 1.23% difference between *homo sapiens* (human beings) and *pan troglodyte* (chimpanzees).**

Regarding the implications of common ancestry and the tree of life, the best book I have read recently is Other Minds: The Octopus, the Sea, and the Deep Origins of Consciousness (Farrar, Straus and Giroux: 2016) by Peter Godfrey-Smith, a philosophy professor at the City University of New York. As we talked about earlier, although we only have to go back **six million years to find the common ancestor of a human and a chimpanzee, we have to go back 600 million years to find the last common ancestors of humans and octopuses.** As best we can tell, that last common ancestor of humans and octopuses looked something like a "small, flattened worm...just millimeters long" swimming in the ocean with "simple eyes, or at least

light-sensitive patches...” (Godfrey-Smith 5). And over time, as members of this common ancestor reproduced, evolution happened

through an accumulation of happenstance changes.... And **before long we are looking not at two collections of worms, but at two enormous branches of the evolutionary tree.** One path forward...leads to vertebrates...and within vertebrates, to mammals and eventually humans. The other path leads to a great range of invertebrate species, including crabs and bees and their relatives, many kinds of worms, and also the mollusks, the group that includes clams, oysters, and snails (Godfrey-Smith 9).

But here’s where it gets really interesting. On that branch that leads not to us humans, but to octopuses, “most of the animals are fairly small...except for cephalopods.” Of particular interest are octopuses, cuttlefish, and squid, who all have “large and complex nervous systems” (Godfrey-Smith 4-5). **“Cephalopods are an island of mental complexity in the sea of invertebrate animals.”** And from the perspective of the tree of life in which we split from them 600 million years ago, the most recent common ancestor of humans and octopuses was so simple and lies so far back [those “small, flattened worms...just millimeters long” swimming in the ocean with “simple eyes, or at least light-sensitive patches...”] that

cephalopods are an *independent experiment* in the evolution of large brains and complex behavior. If we can make *contact* with cephalopods as sentient beings, it is not because of a shared history, not because of kinship, but because evolution built minds twice over. This is probably the closest we will come to meeting an intelligent alien (Godfrey-Smith 9).

All these claims, of course, raise a lot of questions about definitions.

When we talk about what animals think and feel, the word **consciousness is about awareness.** As far as I know, the pulpit that I preach behind on Sunday mornings is not conscious. I could chop it down or burn it, and it would make no difference to the pulpit. If you remember the earlier Darwin quote about plants, then maybe the tree it came from was aware in some extremely basic sense of the word—but let’s set that aside for a future exploration about

trees, since our current focus is on animals. One helpful definition of consciousness comes from Christof Koch, head of the Allen Institute for Brain Science in Seattle:

- Consciousness is the *thing that feels like something*.... **Cut your leg, that's physical. If the cut hurts, you're conscious.**
- The part of you that knows that the cut hurts, that feels and thinks, is your *mind*.
- **The ability to feel sensations is called *sentience*....** Under general anesthesia we remain very much alive though not conscious. And during sleep our unconscious brains are working hard, cleansing, sorting, rejuvenating. (Safina 21)

So how do we begin to map out the *spectrum of sentience* about what animals think and feel?

We still have a lot to learn, but science has also learned an incredible amount in the past century alone:

- “The simple fact that chickens establish a ‘pecking order’ was not formally recognized until the 1920s.”
- “Also in the 1920s, Margaret Morse Nice first discovered that songbirds defend territories—and that’s one of the most basic reasons they sing.”
- In 1973, three scientists shared a Nobel Prize for their studies of “honeybee dance-language, fish courtship, and how baby geese ‘imprint’ on the first moving object they see.” (Safina 25-26)
- “Conventional wisdom holds that only humans can consciously plan. But when jays [the name of several species of medium-sized birds] store perishable foods, they use up the perishable food stashes first.” (Safina 260)
- And generally “The most startling finding in recent work on animal intelligence is how smart some birds are, especially parrots and crows.” (Godfrey-Smith 50)
- Similarly, “Chickens exist in stable social groups. They can recognize each other by their facial features. They have 24 distinct cries that communicate information to one another, including separate alarm calls” (Bekoff and Pierce 34-35).
- Gorillas are one among many examples of animals who use forms of tools. Gorillas “test the depth of marsh water with sticks, use staves to lean out over water, and move logs to make

bridges over swampy places.... Capuchin monkeys transport heavy stones to nut-tracking sites, choosing those of appropriate size as anvils and as hammers” (Safina 194-198).

- Octopuses “can learn to navigate simple mazes. They can use visual cues to determine which of two possible environments they have been placed in, and then take the correct route to a goal for that environment. They can learn to unscrew jars to obtain the food inside.” (Godfrey-Smith 52).
- Octopuses can also “recognize and behave differently toward individual human keepers “even when the humans are wearing identical uniforms. Similarly, a cuttlefish at Dalhousie University “reliably squirted streams of water at all *new* visitors to the lab, and not at people who were often around” (Godfrey-Smith 56).
- There are many recorded instances of grief behavior among elephants (Safina 68-69).

These are only a few among many other examples of what science is showing us about the spectrum of thinking and feeling within the Animal Kingdom of which we are a part.

And to make connections about how capacities to think and feel relate to the universal tree of life and evolution through common ancestry,

Brain scans show that core emotions of sadness, happiness, rage, fear, and motivational feeling of hunger and thirst, are generated in deep and very ancient circuits of the brain.... The genes that direct our own bodies to create the mood-making brain hormones oxytocin and vasopressin, for instance, date back at least seven hundred *million* years... [which is older than the last common ancestor of humans and octopuses]. Oxytocin drives bonding...and it makes animal species act social or sexual. Block the hormone; many mammals and birds lose interest in socializing, pairing, nesting, and contact.... Given a sniff of oxytocin, human fathers get more playful with their babies, increase eye-to-eye gazing, and show greater interest in the child.

So what does all that mean for how animals think and feel? The ecologist Carl Safina likes to sum it up this way: “**Your dog really does love you.** Part of the reason is: because you are kind. If you were abusive, your dog would fear you. And they might still love you, out of duty or need—not so different from many people trapped in abusive relationships” (Safina 238). For me, this

evolutionary, tree of life, universal common ancestor view of the world makes me feel deeply connected to what our UU Seventh Principle calls the “interdependent web of all existence.”

Along these lines, I invite you to hear a final quote from Safina about how he has come to think about the tree of life:

The different species are like people who knew each other in high school but have since gone on to different lives and livelihoods. Lots in common. Common roots. A bond, perhaps neglected.... Lots of shared history. And between first breath and final gasp, we endeavor toward a common quest: to love, to raise our young, to find space enough for our lives, to survive the confronting dangers, to do what it takes, to the best of our abilities, to live out the mystery and opportunity of finding ourselves somehow in existence.

We are not all equal. There are real differences, but these differences are on a spectrum of *degree* rather than kind. So **may we each do what we can within our spheres of influence to decrease suffering and cruelty and to increase freedom and compassion for all sentient beings**. In the words of the Buddhist “loving-kindness” meditation:

May all sentient beings be filled with loving-kindness

May all sentient beings be well.

May all sentient beings be peaceful and at ease.

May all sentient beings be free.