

Origin Stories Episode 06: Being a Nice Animal

***Meredith Johnson***

**00:00:13**

This is Origin Stories, the Leaky Foundation podcast. I am Meredith Johnson.

Today, we have the first in a collection of stories Looking at Human Behavior and How It Has Been Shaped by Evolution. Robert Seyfarth and Dorothy Cheney talk about the baboons they have known the way some couples talk about their old neighbors.

***Robert Seyfarth***

Everyone would say “Ah, Silvia. She was just a very nice animal.” And yet, very high-ranking.

***Meredith Johnson***

Baboon gossip is actually part of their job. They both work at the University of Pennsylvania, where Seyfarth is a Professor of Psychology and Cheney is a Professor of Biology. Their research looks at social behavior, communication and cognition in baboons. Through their work with baboons, they are finding out fascinating things that give clues to the evolution of the human mind.

***Dorothy Cheney***

We have worked together since the mid ‘70s on a variety of different species of monkeys, always in Africa, always with wild animals.

***Meredith Johnson***

From 1992 through 2008, they worked in northwest Botswana in a place called Okavango Delta, figuring out what makes baboons’ social system tick.

***Dorothy Cheney***

We are really interested in what baboons know about each other’s relationships and dominance ranks. And one of the intriguing things about human beings is that we cannot help but do this. You know, we are just constantly consumed with other people’s affairs and business. I mean look at all of these lurid magazines. We care about the Kardashians. And it seems like baboons are also compelled, almost, and fascinated by other individual’s relationships.

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### ***Robert Seyfarth***

It is a really complicated, interesting society, because, as with many mammals, the males, when they grow up and they become fully adult size, they leave the groups where they were born and they go off and join other groups, where they seem to battle their way to the top of the male hierarchy and they may go to two or three, four groups during their lifetime.

### ***Meredith Johnson***

Females, on the other hand, stay in the group where they were born throughout their lives. They have really close relationships with their mothers and sisters.

### ***Robert Seyfarth***

If you were to walk around one of these groups of baboons that has seventy or eighty individuals, you would notice very quickly that there is one female who, when she moves through the group, the others step aside. She is not particularly aggressive. They just defer to her. And then there is another female who everyone steps aside for, except for the first one. And it turns out that baboon females can be ranked in a dominance hierarchy with one female at the top. And as her daughters are born, they acquire ranks immediately below those of their mothers.

### ***Meredith Johnson***

Scientists know, from long-term studies of baboons, that these ranks do not change. They are stable over generations. Seyfarth and Cheney could see this is how the baboons were organized, but what they really wanted to get at was did the baboons themselves recognize that this was happening.

### ***Robert Seyfarth***

Baboons have this sophisticated society in which kinship and rank is tremendously important. But are these ideas of kinship and rank just what humans know about baboons or did the baboons themselves actually understand something about the way their group is organized? And that is what our research is designed to examine: What do baboons know about their own and each other's social relationships?

### ***Meredith Johnson***

To test the baboons' understanding, Seyfarth and Cheney combined their long-term observations with a series of what they call "playback experiments."

### ***Robert Seyfarth***

Imagine a bunch of female baboons arranged in a linear dominance hierarchy. And do they understand what the hierarchy is or does an animal in the middle simply divide the world into two groups: those that rank above her and those that rank below? The other possibility is that she actually knows the ranks of others.

### ***Meredith Johnson***

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So, baboons make different sounds in their social interactions. These sounds go with particular social patterns. Like when a baboon screams, it only screams at higher ranking baboons. And when a baboon gives a threat-grunt, it only gives threat-grunts to lower-ranking baboons.

### ***Robert Seyfarth***

So, we record all these and we have a large library of sounds.

### ***Meredith Johnson***

So, if you take a baboon who ranks sixth in the female hierarchy and you hide a speaker behind a bush not too far away from her, you can play some screams and grunts that make it sound like two other baboons are having an interaction.

### ***Robert Seyfarth***

So, that you can play them the threat-grunt of the animal ranked three and the scream of the animal ranked four, which would be a perfectly normal thing that you might hear on any given day. And so, that is the baseline test.

### ***Meredith Johnson***

But Seyfarth and Cheney can dig into their library of sounds and create an unnatural sequence, like a lower-ranking baboon threat-grunting (sound of baboon grunting) and a higher-ranking baboon screaming (sound of baboon screaming). If the baboon listening was aware of the rankings, that mix of sounds would turn their social world upside down. It is what psychologists call “a violation of expectation experiment.” And it turns out that if you play these unexpected calls, the baboons really do seem surprised.

### ***Robert Seyfarth***

Well, it is not a dramatic abreaction. I mean very often they just look much longer. But if you do this enough times, then you find consistently that they are much more surprised and attentive when they have heard a violation of expectation than when they have heard a normal interaction. And if you do a series of those experiments, what you are really doing is experiments that show that a baboon knows about the rank relations that exist among others in the group, so they really do have an understanding of the dominance hierarchy.

### ***Meredith Johnson***

So, Cheney and Seyfarth, satisfied that the baboons seem to understand this hierarchy, went on to explore other questions. And one of the great things about talking with them is that every fascinating conclusion led us to even more interesting questions.

### ***Dorothy Cheney***

So, we know that baboons recognize each other’s relationships. But one of the intriguing things is they seem also to do this about other species’ interactions.

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### ***Meredith Johnson***

So, there is this famous story of a baboon called Alla, who herded goats for a farmer in Namibia in the early twentieth century.

### ***Dorothy Cheney***

He originally had just acquired this baboon just as a pet, but he had captured with the goats, for reasons that are lost in the midst of time. Who knows?

### ***Meredith Johnson***

When the farmer let the goats out to forage in the morning, Alla went with them. She herded the goats, groomed them, and guarded them against leopards. In the evening, she would come back, right in the biggest goat like it was a little horse.

### ***Dorothy Cheney***

At night, this farmer would separate the goats from their babies, in order to milk the females. And this baboon became really agitated and upset. Alla would just have none of this. And so, she would carry the kids from their barn and deposit them with the appropriate mother.

### ***Meredith Johnson***

Even though the farmer beat her savagely for interrupting the milking.

### ***Dorothy Cheney***

But it became quite clear that Alla knew which kid goes with which goat and just could not bear the idea that they were separated.

### ***Meredith Johnson***

This baboon could not help herself. She just had to put the correct goat kid with the correct goat mom.

### ***Dorothy Cheney***

Dogs, which have been bred for centuries to be herders, do not do this. It seems to be a uniquely primate trait that we, like baboons, are obsessed with each other's relationships. So, the thing that has intrigued Robert and me for the last several years is why. Why is this? What does it get you to know about other individual's relationships? What does it get you to be a voyeur? And so, one of the things Robert and I are interested in investigating is whether or not this obsession with other individual's relationships actually helps you to form bonds and maintain them and establish them and to form strategic alliances with others.

### ***Meredith Johnson***

So, with a new set of questions, Cheney and Seyfarth started to look at the relationships between the baboons outside of the dominance structure.

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### ***Dorothy Cheney***

Intriguingly, there is more and more evidence that what contributes to reproductive success and longevity and offspring survival and health in these animals is not dominance rank, which is so obvious to us, but your social bonds: whether or not you have friends; whether or not you have close relationships with others.

### ***Meredith Johnson***

What do baboon friendships look like?

### ***Dorothy Cheney***

Well, the primary way that baboons and other primates manifest their close bonds is by grooming. So, I groom you and it feels good and we go back and forth. It is just a way of showing a close relationship. And so females that groom together will often form alliances with each other, in an aggressive interaction. They will feed near each other, sometimes protect each other's offspring.

### ***Meredith Johnson***

A network of friends and allies can be the difference between life and death. You see, life for the baboons can be tough. It is unpredictable and stressful. It is common to lose close relatives and babies to lions, to leopards, to new male baboons coming into the community. And when this happens, the levels of their stress hormones, their glucocorticoids, go way up.

### ***Dorothy Cheney***

We also find that females who have a strong social network recover faster. So, females who are able to find other grooming partners and substitute that individual who was lost with another partner, tend to have reduced glucocorticoids.

### ***Meredith Johnson***

And so people always want to know what this means for humans, our friendships and our stressful lives. What does that—

### ***Dorothy Cheney***

Yes. I mean it makes me wish I had kept in better touch with my high school friends, that is for sure. It does seem to mirror a lot of the same behaviors and physiological responses that we see in humans. Humans—obviously, if they lose a close relative or a close friend, this is stressful. Their stress levels go up. We know that people with strong support networks tend to recover faster. So, I think what is really interesting is finding us in baboons.

### ***Meredith Johnson***

This suggests that maybe primates care so much about each other's social bonds, because social bonds have such an influence on their survival.

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### ***Dorothy Cheney***

We now know that having a close social bond is very, very important to wellbeing. But we still have not yet made the link about whether or not some animals are better than others at making friendships and what this means in terms of cognition.

### ***Meredith Johnson***

Cheney and Seyfarth saw differences in the baboon's reactions in stressful situations that opened up yet another set of questions.

### ***Dorothy Cheney***

We know that some animals, if they lose a close relative to predation, as I mentioned, are able to bounce back and others are not. We have seen adult males who, when they lose their dominance ranks, some of them just give up. Within a couple of weeks, they are skin and bones. You can see their skeleton and they invariably die. Whereas other males seem to sort of accept their loss of rank and say "Well, that is fine. I will take care of my babies and try to sneak in a few copulations," and they go for years. So, what causes some animals just to give up when they have one setback and others to say, "Hell no. I am keeping on." It is the same sort of thing that you see in humans.

### ***Meredith Johnson***

And this question leads us to what Cheney and Seyfarth are working on now.

### ***Dorothy Cheney***

Recently, Robert and I have been doing a lot of work on what we may call "personality" in baboons. And it seems that some baboon females, with a certain sort of personality profile, are better at forming close social bonds.

### ***Robert Seyfarth***

Imagine you are a baboon. You are born into a group where, particularly if you are a female, major parts of your position in the group are pretty much fixed and they are out of your control.

### ***Meredith Johnson***

You are born into a family. That family has a certain dominance rank. It is not going to change.

### ***Robert Seyfarth***

It would be nice if you had sisters and if your mother lived for a long time, but that is out of your control. It is under control of lions. So, what can you control? Your personality. So, it seems like being a nice animal makes a big difference.

### ***Meredith Johnson***

In baboons, personality is measured by things like how often they approach other animals, how often they groom with others, how often they are friendly.

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### ***Robert Seyfarth***

To the extent that those behavioral measures translate into strong social relationships, we know they translate into reproductive success. So, this is what evolution is going to act on. And this is one way of attacking the much bigger question of: How did humans get to be so smart? How did primates get to be so smart, if indeed they are smarter than other animals? Why did they have these big brains? And maybe it is because what natural selection is favoring is individuals who have social skills. And to have social skills, you have got to have cognitive skills.

### ***Meredith Johnson***

See? Even more interesting questions. Robert Seyfarth and Dorothy Cheney now think this evolutionary pressure for social awareness—for being a nice animal—could help explain the evolution of our brains.

### ***Robert Seyfarth***

Because remember that baboons do not make tools; they do not have culture; they do not have language. And what this suggests is, when you think about the long history of human evolution, long before we had these elaborate things—tools, culture, language—our ancestors lived in a group that was kind of a social cauldron—lots of competition, lots of cooperation, lots of social relationships.

### ***Dorothy Cheney***

This suggests that this need to form social bonds and the adaptive value of a close same-sex friendship is ancient, evolutionarily speaking.

### ***Meredith Johnson***

So, it seems that being obsessed with each other's relationships, forming friendships and alliances is key to survival in social primates. And the brain that we brought to the table, when we were in the process of developing tools and language and culture, was a brain that had been shaped and honed by the complexity of navigating social life.

Thanks for listening to Origin Stories and big thanks to Dorothy Cheney and Robert Seyfarth for sharing their work. They wrote a book about their baboon research called *Baboon Metaphysics*. It is a fascinating read and I highly recommend it. We will have a link to the book and to their website in the show notes.

Origin Stories is a project of The Leaky Foundation. The Leaky Foundation is dedicated to funding human origin, science, and outreach. I asked Robert Seyfarth and Dorothy Cheney why people should consider donating to The Leaky Foundation.

### ***Robert Seyfarth***

So, if you ask a venture capitalist, “Well, is this going to yield a product in the next two or three years?” they often say, “Well, I am not interested in that. I am interested in a discovery that is going to

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change the way we think about things.” That is the attitude that you have to take for this kind of research and it is really important. And few people, other than The Leaky Foundation, are taking this perspective.

### ***Dorothy Cheney***

The other thing I would say, to add to Robert, is that this work is not that expensive. It is not that hard to keep a field project going when you compare it to the cost of keeping a lab going in a major university. And so, you get a lot of bang for your buck, when you give to some places like Leaky Foundation, simply because a little money goes a very, very long way.

### ***Meredith Johnson***

Your donation to The Leaky Foundation can go even further, thanks to a generous donor who is matching every donation, dollar for dollar, up to a million dollars. You can help The Leaky Foundation fund this podcast and the kinds of research we talk about with the donation to the [leakyfoundation.org/donate](http://leakyfoundation.org/donate).

This episode is made possible by support from the Being Human Initiative. Being Human is a joined project of [The Leaky Foundation](http://TheLeakyFoundation.org) and [The Bauman Foundation](http://TheBaumanFoundation.org), dedicated to understanding modern life from an evolutionary perspective. The Being Human Project is also hosting a new event series in San Francisco. Being Human mixes talks from great minds with fun, hands-on experiments, drinks, storytelling, and more. You can learn more at [leakyfoundation.org/beinghuman](http://leakyfoundation.org/beinghuman).

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Today’s episode was produced by me, Meredith Johnson. Our editor is Audrey Quinn. Original music, scoring, and engineering by Henry Nagel. We had production help from Skyler Swanson. If you like the show, please tell your friends and consider giving us a review on iTunes, where new show and good reviews are the best way to help others find us. Thanks for listening.

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