



Excerpt from the Prologue to *Are We Smart Enough to Know How Smart Animals Are?*

For most of the [twentieth] century, science was overly cautious and skeptical about the intelligence of animals. Attributing intentions and emotions to animals was seen as naïve “folk” nonsense. We, the scientists, knew better! We never went in for any of this “my dog is jealous” stuff, or “my cat knows what she wants,” let alone anything more complicated, such as that animals might reflect on the past or feel one another’s pain. Students of animal behavior either didn’t care about cognition or actively opposed the whole notion. Most didn’t want to touch the topic with a ten-foot pole. Fortunately, there were exceptions... but the two dominant schools of thought viewed animals as either stimulus-response machines out to obtain rewards and avoid punishment or as robots genetically endowed with useful instincts. While each school fought the other and deemed it too narrow, they shared a fundamentally mechanistic outlook: there was no need to worry about the internal lives of animals, and anyone who did was anthropomorphic, romantic, or unscientific.

Did we have to go through this bleak period? In earlier days, the thinking was noticeably more liberal. Charles Darwin wrote extensively about human and animal emotions, and many a scientist in the nineteenth century was eager to find higher intelligence in animals. It remains a mystery why those efforts were temporarily suspended, and why we voluntarily hung a millstone around the neck of biology—which is how the great evolutionist Ernst Mayr characterized the Cartesian view of animals as dumb automatons. But times are changing. Everyone must have noticed the avalanche of knowledge emerging over the last few decades, diffused rapidly over the Internet. Almost every week there is a new finding regarding sophisticated animal cognition, often with compelling videos to back it up. We hear that rats may regret their own

decisions, that crows manufacture tools, that octopuses recognize human faces, and that special neurons allow monkeys to learn from each other’s mistakes. We speak openly about culture in animals and about their empathy and friendships. Nothing is off limits anymore, not even the rationality that was once considered humanity’s trademark.

In all this, we love to compare and contrast animal and human intelligence, taking ourselves as the touchstone. It is good to realize, though, that this is an outdated way of putting it. The comparison is not between humans and animals but between one animal species—ours—and a vast array of others. ...it is undeniable that humans are animals. We’re not comparing two separate categories of intelligence, therefore, but rather are considering variation within a single one. I look at human cognition as a variety of animal cognition. It is not



Soga Shōhaku, *Oxen and Herdboys* (detail), 1760s, six-panel folding screen, ink on paper, 65 5/8 × 147 1/2 in. (166.69 × 374.65 cm). Los Angeles County Museum of Art; Gift of the 2016 Collectors Committee with additional funds provided by Janet and Marvin Jubas, Lenore and Richard Wayne, and Irene Christopher (M.2016.220b).



A World of Edo Art Creatures of the Land

even clear how special ours is relative to a cognition distributed over eight independently moving arms, each with its own neural supply, or one that enables a flying organism to catch mobile prey by picking up the echoes of its own shrieks.

We obviously attach immense importance to abstract thought and language (a penchant I am not about to mock while writing a book!) but in the larger scheme of things this is only one way to face the problem of survival. In sheer numbers and biomass, ants and termites may have done a better job than we have, focusing on tight coordination among colony members rather than individual thought. Each society operates like a self-organized mind, albeit one pitter-pattering around on thousands of little feet. There are many ways to process, organize, and spread information, and it is only recently that science has become open-minded enough to treat all these different methods with wonder and amazement rather than dismissal and denial.

de Waal, Frans. Excerpt from "Prologue." In *Are We Smart Enough to Know How Smart Animals Are?*, 3–5. New York: W.W. Norton & Company, 2016.