

The Sentience of Chimpanzees and Other Animals

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Chimpanzees' lives

Chimpanzees, in many ways, serve as ambassadors from the animal kingdom to the world of humans - as a bridge between 'man' and 'beast'. I began my study of the Gombe chimpanzees, living on the eastern shore of Lake Tanganyika, in Tanzania, in 1960. During the 46 years of continuous study since then, we have learned much of enormous significance, both for the understanding of chimpanzees and their complex society, and for the understanding of many aspects of our own behaviour and our relationship with the rest of the animal kingdom. Perhaps the most significant findings are those that show just how like us chimpanzees actually are.

First of all, there are the numerous physiological similarities between chimpanzees and us. The composition of chimpanzee and human blood is so similar that we could receive a blood transfusion from a chimpanzee. Their immune system is so like ours that they can catch or be infected with just about all known human contagious diseases. The structure of the DNA of chimpanzees and humans differs by only about 1 per cent and, now that the genome of the chimpanzee has been unravelled, it seems that the genetic similarity between us and them is even closer than was thought before. Most fascinating for me is the similarity in the structure, the anatomy, of the chimpanzee and human brain and nervous system. Thus it should not be surprising to find that these apes are capable of intellectual performances once thought unique to the human animal. It has been demonstrated in a variety of captive studies that they are capable of generalizing, abstraction and cross-modal transfer of information. They can understand and use abstract symbols in communicating. They can learn more than 300 of the signs used in American Sign Language (ASL) and can communicate with each other in this way as well as with their trainer. They are capable of self-recognition and can often understand the moods and needs of other individuals - in other words, they have a 'theory of mind'.

As the Gombe research continued, I gradually got to know more and more of the approximately 50 individuals who made up the community I was studying. I named them, and learned that each had a unique personality. I soon realized that they had extremely complex social lives.

Chimpanzees have a large repertoire of calls, postures and gestures with which they communicate information about what is going on within and around them. They kiss, embrace, hold hands, swagger and tickle - just like we do, and often in the same context. They not only use but also make tools - an ability once thought to differentiate humans from the rest of the animal kingdom. And they use rocks and sticks as missiles, often demonstrating very accurate aim. Chimpanzees are capable of compassion and altruism on the one hand, and of violence and a kind of primitive warfare on the other.

Particularly striking are the long-term affectionate and supportive relationships between family members that can last throughout life (chimpanzees can live more than 60 years). There is a long childhood dependency of five or six years, during which the infant suckles, rides on the mother's back and sleeps in her nest at night. And then, when a new baby is born, the older child remains emotionally dependent on the mother for at least another three years and possibly longer. Even after that, he or she repeatedly returns to spend time with the mother and the younger siblings. Learning plays an important role in the acquisition of social and environmental skills. We now know that in different parts of Africa, wherever chimpanzees have been studied, they use different objects as tools, in different contexts. Chimpanzees, like humans, can learn to make and use tools not only by trial and error, but also through observation, imitation and practice - one of the anthropologists' definitions of cultural behaviour.

Cooperation and altruism

The chimpanzees in the wild show sophisticated cooperation. This is particularly obvious during hunting and the sharing of the carcass after a kill. And our longitudinal study has yielded many striking examples of their capacity for caring and altruism. Let me share some of these stories. The first of these occurred when I was following a nine-year-old adolescent named Pom and her little three-year-old brother, Prof, along a forest trail. Suddenly Pom stopped and stared at a place along the trail ahead. Her hair bristled and she gave a tiny 'hoo' of fear and ran up a tree. Prof continued along the trail. Perhaps he didn't hear the sound she made; perhaps he didn't know what it meant. As he got closer and closer to the place along the trail, his sister became more and more agitated. A huge grin of fear appeared on her face, every hair bristled and finally she rushed down the tree, gathered up her little brother and climbed back up the tree with him. There, coiled up at the side of the trail, was a big poisonous snake. The second example concerns Madam Bee, an old female who became a victim of what was probably

poliomyelitis. She lost the use of one arm and found it tiring to travel long distances between one food source and another. On several occasions when she arrived at a large fruit tree with her elder daughter, Little Bee, she lay on the ground while Little Bee climbed up to feed. Then, after feeding for ten minutes or so, Little Bee stuffed as much food as she could in her mouth, took some more in her hand, climbed down and laid the food in her hand beside her old mother. The two sat together feeding. One example of true altruism at Gombe occurred when three-and-a-half-year-old Mel lost his mother. As mentioned, chimpanzee youngsters in the wild suckle until they are five or six years old - but they can survive on solids from about three years old. If Mel had had an older brother or sister, he would have been adopted, carried around and protected by that elder sibling. But Mel had no elder sibling and it seemed unlikely that he could survive. Then, to our amazement, a 12-year-old adolescent male, Spindle, adopted him. Spindle carried Mel on his back and let him cling to his belly if Mel was frightened or cold. He shared his food with Mel when the infant begged, and gathered him into his nest at night. When the adult males challenge one another for social dominance, performing wild displays, hurling rocks and branches, mothers quickly take their infants out of the way. Males have been known to throw or drag infants who get in the way. If Mel got too close to the adult males on such occasions, Spindle would run to rescue Mel, though he risked being buffeted himself, and sometimes was. Yet usually adolescent males are extremely cautious when in the vicinity of the big males when they are socially aroused, and keep well out of the way. It is without question that Spindle saved Mel's life.

In some zoos chimpanzees are kept on islands or exhibits surrounded by water-filled moats, since they do not swim. There are examples of chimpanzees risking their lives to try to save companions from drowning when they accidentally fall into the water. One adult male died when trying to rescue a drowning infant.

The implications for ethology

It was because of the striking physiological similarities between humans and chimpanzees that science seized upon chimpanzees as the ideal model for the study of certain human diseases - especially those that do not affect most laboratory animals. Yet at the same time, science was reluctant to admit to the equally striking ways in which chimpanzees resemble us intellectually, behaviourally and emotionally. Thus hundreds of chimpanzees were doomed to imprisonment in sterile lab cages just 5 feet square and 7 feet high. It was only after I had been a year in the field, when Louis Leakey got me into a PhD programme at Cambridge University (though I had no degree of any kind), that I first began to understand the bitter struggle between those who believe that animals can be exploited, used and abused in ways that might be of some benefit to the human species, and those who believe passionately that animals should be given certain rights that would protect them from such exploitation. At that time,

in the early 1960s, many ethologists maintained that the behaviour of all animals - except the human animal - was little more than a series of genetically coded responses to sensory stimuli. To attribute human-like behaviour to nonhuman animals was to be guilty of anthropomorphism.

So, when I got to Cambridge I quickly found that I had done everything wrong. It would have been more scientific to identify the chimpanzees by numbers rather than names. And I could not talk about personality, mind or emotions in animals, since these things were unique to us -to the human animal. And even if they were present in animals, this could not be proved and so was best not talked about. Fortunately, throughout my childhood, I had had a wonderful teacher who had taught me that animals truly did have personalities, minds and feelings - and that was my dog, Rusty. So I was wary of accepting simplistic, reductionist explanations of complex behaviour. Luckily, at Cambridge I had a wise thesis supervisor, Robert Hinde, who taught me how to express my revolutionary ideas in a way that would save me from much hostile scientific criticism. (For example, I could not say 'Fifi was jealous' since I could not prove this, but I could say 'Fifi behaved in such a way that, had she been human, we would say she was jealous'!)

Since the Gombe study began in 1960, more and more biologists have gone into the field and started long-term studies on all manner of animal species: apes, monkeys, elephants, whales, dolphins, wolves, rodents, birds and so on. And these studies taken together have shown that animal behaviour is far more complex than originally admitted by science. We find that we are not alone in the universe; we are not the only beings capable of love and hate, joy and sorrow, fear and despair. We are not the only creatures with minds capable of solving problems. And certainly we are not the only animals to experience pain and suffering. In other words, there is no sharp line between the human animal and the rest of the animal kingdom. It is a blurred line, and becoming more so all the time. This has been clear to many eastern philosophies and religions, to the indigenous people around the world, and to thousands of ordinary people who have shared their lives, in meaningful ways, with dogs, cats, rabbits, horses and other animals brought into the home, living with the family.

Humans are indeed unique - for one thing we have an extraordinarily well developed intellect. I believe that the key factor in the development of this intellect was the emergence, at some point in human prehistory, of sophisticated spoken language. For this enables us to teach our children about objects and events not present, to learn from the distant past, to make plans for the distant future and to discuss an idea so that it can grow from the accumulated knowledge of a group of people. Our intellect has enabled us to develop truly astonishing technologies. We have been to the moon, we have invented modern electronic communications and computers that can play chess -the list is never ending. But being clever does not equate with being wise. Scientists feel the need to prove everything before they can admit to its truth. But sometimes this is not the best route. Common sense

suggests that if, when an animal is wounded, it screams, tries to escape and shows other signs of distress, it is probably experiencing pain in much the same way as we would in a similar circumstance. When dog owners sense that their dogs are contented or sad, depressed or joyous, they are probably right. And even if there is only a possibility that animals are feeling as some of us believe that they feel, then they should surely be given the benefit of the doubt. We should not let the objectivity of the scientific method override human intuition, human compassion.

Farm animals

The blurring of the line between animals and humans raises for many people a range of ethical issues related to the ways in which we use and abuse animals for so many purposes all around the world. One such issue relates to the raising of animals for food in factory or intensive farms.

I was introduced to many farm animals when I was a child. In fact it would be true to say that I started my scientific career in a hen house! When I was four and a half years old I spent a holiday on a farm in the country. My family lived in London where the only animals around, other than our dog, were pigeons and sparrows. So seeing cows and pigs and horses out in the fields, and meeting them close up, was very exciting. One of my jobs was to collect the hens' eggs. There were no battery farms in those days and the hens were laying their eggs mostly in little wooden hen houses. Each day I put these eggs into my basket and after a while I began to wonder where, on the hen, was there a hole big enough for the egg to come out from? I examined the hens very closely but was unable to see such a hole. Apparently I then began asking everyone 'Where does the egg come out?', but without getting an answer that satisfied me. So when one afternoon I saw a hen going into one of the henhouses, and thinking, I suppose, that she was going to lay an egg, I crawled after her. Of course, this was a mistake. The hen, scared, flew off with squawks of fear.

Realizing that other hens would probably avoid that particular hen house, I climbed into an empty one, hid in the straw at the back and waited – and waited, and waited - until finally a hen came in. I can still remember seeing the slightly soft white egg plop onto the straw. Meanwhile my family had no idea where I was and, after searching all over, finally called the police. My mother, still searching, suddenly saw an excited little girl, covered in straw, rushing towards the house. Instead of getting mad at me for frightening everyone, she sat down to hear the story of how a hen lays an egg. When I look back on that incident, I realize that I showed all the hallmarks of a budding scientist. I was curious, I asked questions. The answers did not satisfy me so I decided I had to find out for myself. My first attempt failed, so I tried another method. And I learned that the most valuable attribute was patience.

Habituating an animal to human presence is tremendously important when you go out in the field. My first experience was when I was about eight years old, and on another wonderful holiday in the country. Close to where we were staying was a field of saddleback pigs. I remember climbing over the gate and moving slowly towards them - but they ran off. We were there for two weeks, and every day I went back to the field after lunch with an apple core. At first I put the offering on the ground as near to the pigs as I could get, and moved away a bit to watch. After a few days one pig approached and took the apple core, and eventually, to my great delight, he actually took the apple core from my hand. Then one day he let me scratch him behind his ear. This was the only time in my childhood I remember being really rude to an old lady. She shouted from the fence, 'Don't touch that pig, little girl, they're dirty and will give you a disease.' I shouted back very angrily, 'He's just as clean as you and me!'

When I first got to Gombe to study the chimps, somebody gave me two chickens that were meant to be eaten: a hen and a rooster. I cut the string that tied their legs together and they became good companions, eating many insects around the camp, including scorpions. I named them Hengist and Hildegard, and Hengist was a wonderful alarm clock. It was quite impossible to sleep through his predawn crowing. They were enchanting birds, each with a very distinctive personality.

It was a real shock when, in the 1970s, I read *Animal Liberation* by Peter Singer and learned about factory 'farms'. Places where hens and other poultry, cows and calves, and pigs were kept in crowded, stinking conditions; fed hormones to make them grow faster; and fed antibiotics as a prophylactic to keep them alive. I was horrified. And when I next looked at a piece of meat on my plate I realized that it symbolized fear, pain and death. And I never ate meat again.

It's encouraging to find that at least some farmers are beginning to return to the *old-fashioned* methods of animal husbandry. There are imaginative projects that attempt to improve conditions for some farm animals. One of these, funded by Barclays Bank, is at a large chicken farm in Ghana. The chickens at this farm are, indeed, kept in large numbers in a shed. But the building was designed with a wide ledge some 4 feet from the ground, so that while many of the broilers stay on the ground, others choose to fly up onto the ledge, from where they can look out of a window. It seems that this ledge, which goes right around the shed, has made a big improvement in the short lives of those chickens.

Intensive factory farming is not only unethical with regard to animal suffering, but also because of its adverse impact on the environment and human health. The use of farmland for grazing cattle or for growing grain to feed cattle is very wasteful, is causing the destruction of ever increasing areas of natural habitat and is placing unsustainable demands on water. Intensive animal farming practices also pose a significant risk to human health. It has been suggested that the use of growth hormones to increase milk production in dairy cattle could have adverse affects on consumers. The practice of giving animals antibiotics in their feed, to keep them alive in the highly stressed environment of the intensive farm, is

causing many bacteria to become increasingly resistant to more and more antibiotics. There is a very real danger that we shall create terrifying 'super bugs' that will be unaffected by all known antibiotics.

Unfortunately, in spite of the very real ethical issues connected with intensive animal farming, many people prefer not to think about the animal suffering or the threat to human health. When I describe the suffering of animals in factory farms, or the horrors of the slaughter house, people often tell me that they love animals, and so cannot bear to be told about the horrible conditions farm animals must endure.

Education

One of the programmes of the Jane Goodall Institute that is helping to raise understanding of the true nature of animals and ways in which we humans exploit them and cause them to suffer is 'Roots & Shoots'. The name is symbolic: roots make a firm foundation, shoots seem small but to reach the sun they can break through a brick wall. And if we see the brick wall as all the problems, environmental and social, that we humans have inflicted on the planet, then Roots & Shoots brings a message of hope: hundreds and thousands of young people around the world can break through and make the world a better place for animals, people and the environment. The programme began in the early 1990s and there are now some 7500 active groups (a group can be a whole school) in more than 90 countries. We have programmes for children from preschool through to university. The most important message is that every individual makes a difference every day. We endeavour to teach children about the problems in the world around them, and encourage and empower them to take action to make change. Many groups work to improve the lives of stray dogs and cats, enrich the lives of zoo animals by making toys to relieve boredom, raise money to help endangered species, rescue hens from battery farms and learn about many issues of animal cruelty and conservation.

Empathy across species

There are two stories with which I should like to close this chapter. They both involve chimpanzees who were born in Africa and who were about two years old when their mothers were shot. Only by killing the mother is it possible to capture an infant chimpanzee. Both these young chimpanzees were sent, at different times, to the US.

The first, subsequently named Old Man (because newly orphaned chimpanzees look so listless and old), was sold to a biomedical research laboratory where he

was used for cancer research. Old Man was fortunate - after some ten years of stressful life in the lab he was released onto a manmade island at a zoo in Florida. His companions were three females, one of whom had been rescued from medical research and two from the circus. After a while Old Man became father to an infant. About that time Marc Cusano was hired to care for the chimpanzees. He was told not to go near them as they were stronger than people, very dangerous and would try to kill him. At first he approached on a small paddle boat and threw food onto the island. As he learned more about the chimpanzees he became increasingly fascinated. He saw how they embraced and kissed each other, uttering loud excited calls as he approached with their food. He watched Old Man playing with the infant, carrying and protecting her, and sharing his food with her. It seemed to Marc that Old Man really loved the child. Marc wanted to develop a relationship with these amazing chimpanzee beings. So he went a little closer each day, and eventually dared hold out a banana. To his joy, Old Man took it from his hand. Then, one day, Marc stepped onto the island. One day he groomed Old Man. One day they actually played. They had become friends.

Then came the terrible occasion when Marc slipped as he walked across the island, and fell. The infant, startled, screamed in fear and instantly the mother rushed to protect her child and bit Marc on the neck as he lay face down on the ground. The other two females rushed to support their friend; one bit his leg, the other his wrist. Wondering how he could get away Marc raised his head - and saw Old Man charging towards him, hair bristling, lips bunched in a furious scowl. Coming, Marc supposed, to rescue his precious child. He told me that he expected to be killed. But Old Man physically pulled each female off, and kept them away as Marc dragged himself to safety. Without doubt, Old Man saved his life. How moving: a chimpanzee, who had been abused by humans, nevertheless reached out, across the supposed gulf between us and other animals, to help his human friend.

The second infant chimpanzee, who became known as JoJo, was sent to a zoo. There he lived for about ten years in a small, old fashioned zoo cage with a cement floor and iron bars. Then a new enclosure was built with a moat filled with water. Nineteen other chimpanzees were bought, carefully introduced to each other, and finally let out into the enclosure. Soon after this, one of the new young males challenged the senior male - JoJo - with the swaggering displays, the bristling hair, the bunched lips and the hurling of rocks typical of a male chimpanzee. But JoJo didn't understand much about chimp behaviour - he hadn't had a chance to learn - and he was terrified. He ran to the water; he didn't even know about water. He was so scared he managed to climb over the railing built to prevent the chimps from drowning in the deep water beyond. Three times he came up gasping for air and then he disappeared under the water.

On the far side of the moat was a little group of people. Luckily for JoJo, there was a man there named Rick who visits the zoo one day a year with his wife and three little girls. He jumped in, even though a keeper told him he would be killed,

that JoJo weighed 130 pounds and that male chimps are much stronger than humans. Swimming to where JoJo had disappeared, Rick finally found him, got the 130-pound dead weight over his shoulder, and managed to climb with him over the railing. He could feel JoJo moving as he pushed him up onto the bank of the exhibit. Then Rick turned to rejoin his slightly hysterical family. There was a woman there with a video camera. Her film reveals what happened next.

The people started screaming at Rick to come back because he was going to be killed. They could see three of the big males coming down with hair bristling to see what the commotion was about. And at the same time JoJo was sliding back into the water because the bank was too steep. This film shows Rick as he stood with one hand on the railing. He looked up at his wife and daughters, then towards where the three males were approaching, and then down at JoJo who was disappearing under the water again. For a moment Rick stood there motionless. And then he went back. And again he pushed JoJo up and, ignoring the people, ignoring the three big chimps, he stayed there pushing JoJo who was making feeble efforts to grab on to something. And just in time he got hold of a thick tuft of grass and with Rick pushing managed to get onto the level ground. Just in time Rick got back over that railing.

That evening, that little piece of video was flashed across North America and the then director of JGI-USA saw it. He called Rick: 'That was a very brave thing you did. You must have known it was dangerous. Everyone was telling you. What made you do it?' And Rick said, 'Well, you see, I happened to look into his eyes and it was like looking into the eyes of a man and the message was: won't anybody help me?'

And that's the message that I've seen in the eyes of so many abused, neglected animals whether they be chimpanzee orphans for sale in the African markets or chimpanzees looking out from their bleak sterile lab cages or under the frills of the circus. I've seen it in the eyes of chained elephants and dogs cast out on the streets, and in the eyes of animals imprisoned without hope in factory farms. If we see that look with our eyes and we *feel* it in our hearts, we have to jump in and try to help. And everywhere, today, there are people who have heeded that appeal, people who are speaking out on behalf of animals just as, 200 years ago, people spoke out on behalf of human slaves. And because our cause is right, we shall, eventually, succeed on behalf of the animals. In the meantime we must work even harder and never give up.

This keynote address was presented by Dr Jane Goodall DBE, internationally renowned primatologist and founder of the Jane Goodall Institute, on 17 March 2005 at the conference "From Darwin to Dawkins: Science and Implications of Animal Sentience", convened by Compassion in World Farming (CIWF) and published with proceedings of the conference in "Animals, Ethics and Trade: The Challenge of Animal Sentience" edited Jacky Turner & Joyce D'Silva April 2006: reprinted by ACSSO with kind permission of CIWF and the Jane Goodall Institute.

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