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THE BOOK

BONOBOS ... THE APES WHO MAKE LOVE, NOT WAR

By Paul Raffaele

It could be the beginning of time as I watch the daily life of a group of mysterious creatures that resemble the ape man, Darwin's missing link in the evolutionary tree. Although swathed in coarse black hair, as they stride about they look eerily human with their upright bipedal gait, long slim arms and legs, slender necks and narrow chests. The ape man walked the African savannah six million years ago, but this is Frankfurt Zoo in Germany and the creatures are the little known bonobos or pygmy chimps. The last of the great apes to be discovered, inhabiting Africa's most remote and dangerous jungles, they are our closest evolutionary cousins, sharing 98.4% of our genes.

The bonobos, -- adults, adolescents and infants-- live in connected cages and open-sky pens scattered with tree trunks. Blessed with expressive faces, they look like smallish people as they loll in the tree trunks, or walk upright about their enclosure. An adolescent female, Lindy, gestures me to her and gently grooms my hair. Her long fingers tenderly search through my hair. Satisfied I am clean, she offers her back for me to groom in return.

Amused that I seem to have unwillingly captured the bonobo's heart. I go to pay respect to the clan's matriarch. Lindy's eyes burn, but, minutes later, she draws me back with a sweet gaze. When I come near she tosses into my face a pile of wood shavings she'd been hiding behind her back. As the young bonobo flounces away, I'm thankful this is one relationship that never will go the distance.

The peaceful bonobos are more intelligent than the war-like chimpanzees and Carsten Knott, Keeper of Apes at Frankfurt Zoo, has high respect for them. "I tell new keepers that if you throw a screw driver in with the gorillas, they wouldn't notice it for weeks on end unless they sat on it. If you throw it in with the chimpanzees, they'd use it to destroy something, but if you throw it in with the bonobos, within thirty minutes they'd figure out how to use it to unlock the door and escape."

Because their behaviour is so radically different from chimpanzees, the bonobos are providing new and illuminating insights into our knowledge of our distant ancestors on the tree of life. "Study of bonobos began fairly recently, but already the results are changing the picture of human evolution from the ape man," says Dr Frans de Waal, a primatologist at Atlanta's world-famed Yerkes Primate Center.

In 1920, pioneer primatologist Robert Yerkes of Yale University was captivated by a bright young chimpanzee captured in the wild, naming him Prince Chim. Comparing him with the other chimpanzees he was studying, Yerkes labelled him, "an intellectual genius." We now know from photos that Prince Chim was a bonobo.

Rumours had long been circulating among scientists that mysterious human-like chimpanzees lived in the jungles south of the Congo River and in 1927, Harold Coolidge, a Harvard University zoologist, used skulls collected in the wild to identify the strange ape

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as a separate species for the first time. He wrote that the bonobo, "may approach more closely the common ancestors of chimpanzees and man than does any chimpanzee hitherto discovered."

Bonobos only live in dense lowland tropical rain forest bounded by the Congo and Kasai rivers in the country once known as Zaire, deep in the dark heart of Africa. To study these delightful creatures, researchers from several countries have spent almost three decades with them in the jungle. The first, a shy young Japanese named Takayoshi Kano made a dangerous journey into the Congo in 1973 to seek out the reclusive bonobos. Around a camp fire, a wizened elder told him that bonobos and villagers once shared a common life, but when humans began wearing clothes, the hairy bonobos spurned their smooth-skinned cousins and returned to the jungle.

"The villagers killed chimpanzees for food, but because bonobos were so like humans, since ancient times, they had observed a taboo on killing them and called them brothers," Kano told me when I spoke with him at the University of Kyoto's Primate Research Centre in Japan during an international conference for bonobo researchers. "They told me killing a bonobo was like killing a human."

Kano spent months trudging through dank misty forests before he finally saw up close his first bonobos, a foraging party of ten adults. He was intrigued by the contrast in their appearance to chimpanzees. "The bonobos were a little smaller than chimpanzees, but far more graceful and slender with higher foreheads and limbs shaped more like ours," he says. "When the bonobos walked upright with their straight backs, a very human posture, I got a chill down my spine realising how closely they resembled the ape men, our common ancestors."

The young scientist planted a field of sugar cane deep in bonobo territory and weeks later watched a bonobo tribe, 40 strong, take possession of the site to feast on one of their favourite foods. Crouched in the grass, Kano watched them through binoculars. "Seeing them so close, they seemed more than animals, more a reflection of ourselves, as if they were fairies of the forest," he says.

Expecting to see the bonobos display the aggressive behaviour of their close cousins, the chimpanzees, with the chest-thumping adult males terrorising anyone who defied their heavy-handed rule, he was startled to witness the bonobo females ruling the roost, the only great apes to do so. They sat amiably in circles as they groomed each other, snacked or chatted in high-pitched voices, acting like the grand dames of Parisian saloons, allowing favoured males to sit with them. Whenever a male, shrieking with anger and sometimes dragging a tree bough for effect, made a rare charge against females seated together, they either ignored his boorish display or chased him into the jungle.

Kano's observations were startling news for primatologists familiar with chimpanzee behaviour. "Among chimpanzees, every female of whatever rank is subordinate to every male of whatever rank," says Richard Wrangham, a Harvard University primatologist who has studied chimpanzee behaviour in the wild in the Ugandan jungles for a decade.

Even more enthusiastic, once Kano's findings filtered beyond the tight world of primatologists, were American feminists who claimed the bonobos for their own, the ape world's very own feminists, sisterhood in the jungle. They brandished the peaceful matriarchal rule of our close genetic cousins as proof that evolution pointed to the correctness of females ruling over males in human society. "Females ... form alliances against males and as a consequence, male bonobos do not dominate females or attempt to coerce them sexually," wrote University of Michigan psychologist Barbara Smuts.

The feminists' championing of bonobos as political allies is just as pointless as men using the behaviour of the war-like, hegemonical chimpanzees to justify human males dominating females, using bare-fisted aggression as a biological excuse to keep womenfolk in check. Apes are apes, humans are humans, and though we share common ancestors from several million years ago, we are clearly quite different creatures, clearly more complex and multi-layered in relations between the sexes.

As the weeks stretched into months, with Kano coming to recognise 150 individuals, his excitement grew as he noticed the close attachment between certain females and males. He noticed a highly ranked female he'd named Kame, always accompanied by two males, Ibo and Mon. She groomed them, fed side by side, but never mated with them. He realised he was watching a mother and her two sons bonded by familial affection.

"I saw the other mothers and sons stay together and realised that mothers were the core of bonobo society, holding the group together," he says. "They even pushed their sons' status by encouraging them to mate with other females in their social circle, because the more females a male can mate with, the higher is his status. And if a male dared attack another male, his mother would marshal her female allies to defend him."

Patient observation over many years convinced Kano that male bonobos bonded with their mothers for life. That contrasts with chimpanzee males who rarely have close contact with their mothers after they grow up, instead joining other males in never-ending tussles for dominance. "This was a major revelation because it proved the chimpanzee model was not the only one to point to our origins, that another primate akin to us had developed a social structure mirroring our own mother-son bonding," says primatologist de Waal who has studied bonobos and chimpanzees for more than two decades.

Another of Kano's startling discoveries, which was also a pointer to their superior intelligence, was the bonobos' rich sex life, more akin to the Kama Sutra than the one-dimensional sex life of chimpanzees and gorillas. He noted that bonobo females were in oestrous for most of their 46-day cycle, signalled by their swollen pink rumps, and were eager to mate almost all the time. Chimpanzee females, in contrast, were only interested in sex for a few days each monthly cycle. Kano was amazed when he first saw bonobos mating in the face-to-face position, a favourite way for them. No other great apes do this and for centuries humans had believed only we mated this way, an intimate position involving eye contact that dramatically increases the emotional bond between partners.

What makes it possible for the bonobos, in contrast to the other great apes, is that the female genitalia, like humans, is frontally inclined. Kano also observed that whenever tension arose among the bonobos they calmed each other with sex in a variety of postures. "Alone among the great apes, they practise the many different ways that humans make love," he says. "They are truly the great apes that make love, not war."

Like the chimpanzees, the bonobos are promiscuous with each ape mating with many partners and Kano even saw young females soliciting juicy sugar cane stalks from adult males, offering sex in return. The bonobos have at least 20 gestures and calls that signal willingness to mate such as feverish hooting, the displaying of their bodily charms and food proffering. De Waal also saw this trade-off among the bonobos, once observing a young female approach a male who held an orange in each hand and offer to mate with him. When they finished, she took one of the oranges and walked away.

"Bonobos use sex to promote sharing, negotiate favours, smooth ruffled feathers and make up after fights," he says, echoing Kano's observations over two decades.

Using sex to calm aggression allows bonobos to live in larger groups than chimpanzees and also to have friendly relations with other bonobo clans, copulating with them when they meet by chance in the jungle, rather than fighting them like chimpanzees. Inspired by Kano's revelations, Dr Barbara Fruth of Leipzig's Max Plank Institute for Evolutionary Anthropology has tramped through Congo jungles for nine years following bonobos to study their behaviour. She says that **up to 100 bonobos at a time from several groups spend the night together. "That would not be possible with chimpanzees because there would be brutal fighting between rival groups,"** she told me at the Japan bonobo conference.

At the end of each day, in the gathering gloom, she observed bonobo youngsters playing catch among the trees or squealing with laughter as they tickled each other on the soles of their feet and pulled faces, sucking in their cheeks or blowing out their lips. Infants were indulged and their mothers played a human game of airplane, dangling their babies' bodies

in the sure clasp of their broad upturned feet and zooming them around in the air.

Even the bonobos' nightly nest making signals their high intelligence. I've seen gorillas' nests in the Rwandan rainforest and they were crude constructions, made by dampening down jungle grass with their heavy bodies. Chimpanzees use leaves to fashion basic cradles in the trees, but the bonobos' nests are the most luxurious.

Ignoring the buzzing mosquitoes, Fruth would peer up into the jungle foliage at dusk through binoculars, taking notes as each bonobo chose two or three small trees high in the canopy to make its bed. Entwining their branches to form a platform a yard wide, the bonobo yanks across up to 30 leafy side branches, weaving them basket-like into the nest to form a well-padded mattress. "Adult females are always the first to build and nest highest in the trees, followed by the juveniles, with the males last, their nests closer to the ground."

One of the most amazing demonstrations of bonobo intelligence was witnessed by Atlanta primatologist Dr Sue Savage-Rumbaugh who followed a band on a foraging trip through the Congo jungle. The jungle was criss-crossed with bonobo pathways trampled down by the apes and whenever one trail crossed another, she noticed the bonobos tearing off two or three large leaves and placing them in a row or ripping off tree branches and placing them on the ground to signal the trail they took. Pygmy hunters in the Congo use a similar method to allow other pygmies to follow in their path.

At one split in the trail, the tracker, a local tribesman, indicated that the bonobos had turned left through the dense undergrowth, but Savage-Rumbaugh saw a tree bough placed prominently on the ground, signalling they had gone right. "We turned left, as the tracker wanted, and soon lost them, but when we returned to where the trails crossed and turned right, we followed their markers all the way to where they were feeding," she says.

Intrigued by bonobo intelligence, twenty years ago Savage-Rumbaugh began teaching a young male bonobo basic English in an Atlanta laboratory attached to Georgia State University. Named Kanzi, the bonobo was later joined by half-sister Panbanisha. Using a computer screen containing 350 key pads, geometric symbols which each depict a word such as orange, go, here, river, dog, would, do, or backpack, the bonobos, "talk" with Savage-Rumbaugh and her team of researchers.

On a recent outing in a 55-acre forest attached to the laboratory, Kanzi used a long, hairy finger to touch the key pads for 'Marshmallow', 'Make' and 'Fire', the words emerging from the computer in an American-accented male voice. Given marshmallows and matches, Kanzi snapped sticks to build a fire and grilled the marshmallows skewered on a stick. At the end of the day, Kanzi and Panbanisha sprawled like couch potatoes on the floor of their laboratory quarters snacking on M 'n' M's as they watched videos they selected by pointing to photos on the cassette boxes. Their favourites are, "Quest of Fire," and the Greystone Tarzan movie.

"Their most loved films star ape-like creatures who are friendly with humans," Savage-Rumbaugh told me.

She also claims, controversially, that her bonobos know the meaning of up to three thousand English words. In one of many experiments she gave Kanzi a rubber snake and a stuffed collie dog. It was the first time he'd seen the toys, but he knew what they represented, shown real dogs and snakes on forest walks. "Can you make the snake bite the doggy?" Savage-Rumbaugh asked. In response, she says, Kanzi sank the snake's fangs into the dog's rump. She then asked, "Can you make the doggy bite the snake?" Kanzi responded by putting the snake's head in the mouth of the toy dog and pushing the dog's mouth on it.

Primatologists I spoke to at the Japan conference believe her bonobos do have an extraordinary grasp of the English language, along with a handful of chimpanzees, gorillas and orangutans, who have a simpler understanding after being taught to use a few hundred words of American Sign Language, the language of the deaf. The jury is still out amongst other scientists. Dr Herbert Terrace of Columbia University was one of the original and

Other scientists. Dr Robert Terrace of Columbia University was one of the original ape language researchers, teaching a young chimp rudimentary sign language, but noted later that the chimp's signs were almost always demanding something. He rarely questioned the world about him.

Many, especially linguists, do not believe that apes, however smart, can comprehend language structure with Kanzi and the others moved by the desire for treats to learn simple language-based tricks. Famed linguist Dr Noam Chomsky of the Massachusetts Institute of Technology claims teaching an ape to converse is like trying to teach a man to fly by flapping his arms. Language, he believes, is pre-wired in human brains, shown by common patterns evident in the grammars of all human speech.

"If an animal had a capacity as biologically sophisticated as language but somehow had not used it until now, it would be an evolutionary miracle," says Chomsky.

Because bonobo territory in the Congo is at present in turmoil, at the epicentre of a bloody civil war, researchers dare not venture near. So, for the past two years almost all research on bonobos has been carried out at a handful of zoos in the U.S. and Europe where just 140 bonobos are held captive. There is a grave danger bonobos will soon die out in the wild. In 1972, Kano estimated that there were 100,000 bonobos spread over 200,000 sq km in the Congo basin, but at the Japan conference he announced there were now no more than 20,000 left in the wild.

"Civil wars, a surging human population, the thriving bushmeat trade and the destruction of the bonobos' habitat is hurrying them towards extinction in the wild."

Even peace in the Congo might not save the bonobos. "When the fighting ceases, logging companies are poised to exploit the forest where the bonobos live," says Jef Dupain, a Belgian bonobo researcher with links to the Kinshasa government.

It would be a monumental tragedy if just as we are beginning to get to know these gentle creatures that so resemble ourselves and plumb their extraordinary minds, bonobos died out in the wild. The thought crosses my mind that almost all the bonobo gene pool could be lost forever as I watch Lindy take her small brother, clinging to her back, for a walk across the enclosure at Frankfurt. She seems so special, her character so three-dimensional, and yet there are thousands of bonobos like Lindy in the Congo barely clinging to life. When the keeper tosses a grasshopper into the cage to see the reaction, Lindy hoots with fear and hugs her brother to protect him from the strange chirping creature. Moments later she summons the courage to charge the grasshopper and when she chases it from the cage, she turns to look at me, her little face lit up in triumph.

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