

<http://discovermagazine.com/1992/jun/13-whatslovegottodo56#.USKPnlpATw5>

What's Love Got to Do With It

Sex among our closest relatives is a rather open affair.

By Meredith F. Small Monday, June 01, 1992 Discover

Maiko and Lana are having sex. Maiko is on top, and Lana's arms and legs are wrapped tightly around his waist. Lina, a friend of Lana's, approaches from the right and taps Maiko on the back, nudging him to finish. As he moves away, Lina enfolds Lana in her arms, and they roll over so that Lana is now on top. The two females rub their genitals together, grinning and screaming in pleasure.

This is no orgy staged for an X-rated movie. It doesn't even involve people—or rather, it involves them only as observers. Lana, Maiko, and Lina are bonobos, a rare species of chimplike ape in which frequent couplings and casual sex play characterize every social relationship—between males and females, members of the same sex, closely related animals, and total strangers. Primatologists are beginning to study the bonobos' unrestrained sexual behavior for tantalizing clues to the origins of our own sexuality.

In reconstructing how early man and woman behaved, researchers have generally looked not to bonobos but to common chimpanzees. Only about 5 million years ago human beings and chimps shared a common ancestor, and we still have much behavior in common: namely, a long period of infant dependency, a reliance on learning what to eat and how to obtain food, social bonds that persist over generations, and the need to deal as a group with many everyday conflicts. The assumption has been that chimp behavior today may be similar to the behavior of human ancestors.

Bonobo behavior, however, offers another window on the past because they, too, shared our 5-million-year-old ancestor, diverging from chimps just 2 million years ago. Bonobos have been less studied than chimps for the simple reason that they are difficult to find. They live only on a small patch of land in Zaire, in central Africa. They were first identified, on the basis of skeletal material, in the 1920s, but it wasn't until the 1970s that their behavior in the wild was studied, and then only sporadically.

Bonobos, also known as pygmy chimpanzees, are not really pygmies but welterweights. The largest males are as big as chimps, and the females of the two species are the same size. But bonobos are more delicate in build, and their arms and legs are long and slender.

On the ground, moving from fruit tree to fruit tree, bonobos often stand and walk on two legs—behavior that makes them seem more like humans than chimps. In some ways their

sexual behavior seems more human as well, suggesting that in the sexual arena, at least, bonobos are the more appropriate ancestral model. Males and females frequently copulate face-to-face, which is an uncommon position in animals other than humans. Males usually mount females from behind, but females seem to prefer sex face-to-face.

"Sometimes the female will let a male start to mount from behind," says Amy Parish, a graduate student at the University of California at Davis who's been watching female bonobo sexual behavior in several zoo colonies around the world. "And then she'll stop, and of course he's really excited, and then she continues face-to-face." Primatologists assume the female preference is dictated by her anatomy: her enlarged clitoris and sexual swellings are oriented far forward. Females presumably prefer face-to-face contact because it feels better.

Like humans but unlike chimps and most other animals, bonobos separate sex from reproduction. They seem to treat sex as a pleasurable activity, and they rely on it as a sort of social glue, to make or break all sorts of relationships. "Ancestral humans behaved like this," proposes Frans de Waal, an ethologist at the Yerkes Regional Primate Research Center at Emory University. "Later, when we developed the family system, the use of sex for this sort of purpose became more limited, mainly occurring within families. A lot of the things we see, like pedophilia and homosexuality, may be leftovers that some now consider unacceptable in our particular society."

Depending on your morals, watching bonobo sex play may be like watching humans at their most extreme and perverse. Bonobos seem to have sex more often and in more combinations than the average person in any culture, and most of the time bonobo sex has nothing to do with making babies. Males mount females and females sometimes mount them back; females rub against other females just for fun; males stand rump to rump and press their scrotal areas together. Even juveniles participate by rubbing their genital areas against adults, although ethologists don't think that males actually insert their penises into juvenile females. Very young animals also have sex with each other: little males suck on each other's penises or French-kiss. When two animals initiate sex, others freely join in by poking their fingers and toes into the moving parts.

One thing sex does for bonobos is decrease tensions caused by potential competition, often competition for food. Japanese primatologists observing bonobos in Zaire were the first to notice that when bonobos come across a large fruiting tree or encounter piles of provisioned sugarcane, the sight of food triggers a binge of sex. The atmosphere of this sexual free-for-all is decidedly friendly, and it eventually calms the group down. "What's striking is how rapidly the sex drops off," says Nancy Thompson-Handler of the State University of New York at Stony Brook, who has observed bonobos at a site in Zaire

called Lomako. "After ten minutes, sexual behavior decreases by fifty percent." Soon the group turns from sex to feeding.

But it's tension rather than food that causes the sexual excitement. "I'm sure the more food you give them, the more sex you'll get," says De Waal. "But it's not really the food, it's competition that triggers this. You can throw in a cardboard box and you'll get sexual behavior." Sex is just the way bonobos deal with competition over limited resources and with the normal tensions caused by living in a group. Anthropologist Frances White of Duke University, a bonobo observer at Lomako since 1983, puts it simply: "Sex is fun. Sex makes them feel good and therefore keeps the group together."

Sexual behavior also occurs after aggressive encounters, especially among males. After two males fight, one may reconcile with his opponent by presenting his rump and backing up against the other's testicles. He might grab the penis of the other male and stroke it. It's the male bonobo's way of shaking hands and letting everyone know that the conflict has ended amicably.

Researchers also note that female bonobo sexuality, like the sexuality of female humans, isn't locked into a monthly cycle. In most other animals, including chimps, the female's interest in sex is tied to her ovulation cycle. Chimp females sport pink swellings on their hind ends for about two weeks, signaling their fertility, and they're only approachable for sex during that time. That's not the case with humans, who show no outward signs that they are ovulating, and who can mate at all phases of the cycle. Female bonobos take the reverse tack, but with similar results. Their large swellings are visible for weeks before and after their fertile periods, and there is never any discernibly wrong time to mate. Like humans, they have sex whether or not they are ovulating.

What's fascinating is that female bonobos use this boundless sexuality in all their relationships. "Females rule the business—sex and food," says De Waal. "It's a good species for feminists, I think." For instance, females regularly use sex to cement relationships with other females. A genital-genital rub, better known as GG-rubbing by observers, is the most frequent behavior used by bonobo females to reinforce social ties or relieve tension. GG-rubbing takes a variety of forms. Often one female rolls on her back and extends her arms and legs. The other female mounts her and they rub their swellings right and left for several seconds, massaging their clitorises against each other. GG-rubbing occurs in the presence of food because food causes tension and excitement, but the intimate contact has the effect of making close friends.

Sometimes females would rather GG-rub with each other than copulate with a male. Parish filmed a 15-minute scene at a bonobo colony at the San Diego Wild Animal Park

in which a male, Vernon, repeatedly solicited two females, Lisa and Loretta. Again and again he arched his back and displayed his erect penis—the bonobo request for sex. The females moved away from him, tactfully turning him down until they crept behind a tree and GG-rubbed with each other.

Unlike most primate species, in which males usually take on the dangerous task of leaving home, among bonobos females are the ones who leave the group when they reach sexual maturity, around the age of eight, and work their way into unfamiliar groups. To aid in their assimilation into a new community, the female bonobos make good use of their endless sexual favors. While watching a bonobo group at a feeding tree, White saw a young female systematically have sex with each member before feeding. "An adolescent female, presumably a recent transfer female, came up to the tree, mated with all five males, went into the tree, and solicited GG-rubbing from all the females present," says White.

Once inside the new group, a female bonobo must build a sisterhood from scratch. In groups of humans or chimps, unrelated females construct friendships through the rituals of shopping together or grooming. Bonobos do it sexually. Although pleasure may be the motivation behind a female-female assignation, the function is to form an alliance.

These alliances are serious business, because they determine the pecking order at food sites. Females with powerful friends eat first, and subordinate females may not get any food at all if the resource is small. When times are rough, then, it pays to have close female friends. White describes a scene at Lomako in which an adolescent female, Blanche, benefited from her established friendship with Freda. "I was following Freda and her boyfriend, and they found a tree that they didn't expect to be there. It was a small tree, heavily in fruit with one of their favorites. Freda went straight up the tree and made a food call to Blanche. Blanche came tearing over—she was quite far away—and went tearing up the tree to join Freda, and they GG-rubbed like crazy."

Alliances also give females leverage over larger, stronger males who otherwise would push them around. Females have discovered there is strength in numbers. Unlike other species of primates, such as chimpanzees or baboons (or, all too often, humans), where tensions run high between males and females, bonobo females are not afraid of males, and the sexes mingle peacefully. "What is consistently different from chimps," says Thompson-Handler, "is the composition of parties. The vast majority are mixed, so there are males and females of all different ages."

Female bonobos cannot be coerced into anything, including sex. Parish recounts an interaction between Lana and a male called Akili at the San Diego Wild Animal Park.

"Lana had just been introduced into the group. For a long time she lay on the grass with a huge swelling. Akili would approach her with a big erection and hover over her. It would have been easy for him to do a mount. But he wouldn't. He just kept trying to catch her eye, hovering around her, and she would scoot around the ground, avoiding him. And then he'd try again. She went around full circle." Akili was big enough to force himself on her. Yet he refrained.

In another encounter, a male bonobo was carrying a large clump of branches. He moved up to a female and presented his erect penis by spreading his legs and arching his back. She rolled onto her back and they copulated. In the midst of their joint ecstasy, she reached out and grabbed a branch from the male. When he pulled back, finished and satisfied, she moved away, clutching the branch to her chest. There was no tension between them, and she essentially traded copulation for food. But the key here is that the male allowed her to move away with the branch—it didn't occur to him to threaten her, because their status was virtually equal.

Although the results of sexual liberation are clear among bonobos, no one is sure why sex has been elevated to such a high position in this species and why it is restricted merely to reproduction among chimpanzees. "The puzzle for me," says De Waal, "is that chimps do all this bonding with kissing and embracing, with body contact. Why do bonobos do it in a sexual manner?" He speculates that the use of sex as a standard way to underscore relationships began between adult males and adult females as an extension of the mating process and later spread to all members of the group. But no one is sure exactly how this happened.

It is also unclear whether bonobo sexuality became exaggerated only after their split from the human lineage or whether the behavior they exhibit today is the modern version of our common ancestor's sex play. Anthropologist Adrienne Zihlman of the University of California at Santa Cruz, who has used the evidence of fossil bones to argue that our earliest known non-ape ancestors, the australopithecines, had body proportions similar to those of bonobos, says, "The path of human evolution is not a straight line from either species, but what I think is important is that the bonobo information gives us more possibilities for looking at human origins."

Some anthropologists, however, are reluctant to include the details of bonobo life, such as wide-ranging sexuality and a strong sisterhood, into scenarios of human evolution. "The researchers have all these commitments to male dominance [as in chimpanzees], and yet bonobos have egalitarian relationships," says De Waal. "They also want to see humans as unique, yet bonobos fit very nicely into many of the scenarios, making humans appear less unique."

Our divergent, non-ape path has led us away from sex and toward a culture that denies the connection between sex and social cohesion. But bonobos, with their versatile sexuality, are here to remind us that our heritage may very well include a primordial urge to make love, not war.

Hidden Heat

Standing upright is not a position usually—or easily—associated with sex. Among people, at least, anatomy and gravity prove to be forbidding obstacles. Yet our two-legged stance may be the key to a distinctive aspect of human sexuality: the independence of women's sexual desires from a monthly calendar.

Males in the two species most closely related to us, chimpanzees and bonobos, don't spend a lot of time worrying, "Is she interested or not?" The answer is obvious. When ovulatory hormones reach a monthly peak in female chimps and bonobos, and their eggs are primed for fertilization, their genital area swells up, and both sexes appear to have just one thing on their mind. "These animals really turn on when this happens. Everything else is dropped," says primatologist Frederick Szalay of Hunter College in New York.

Women, however, don't go into heat. And this departure from our relatives' sexual behavior has long puzzled researchers. Clear signals of fertility and the willingness to do something about it bring major evolutionary advantages: ripe eggs lead to healthier pregnancies, which leads to more of your genes in succeeding generations, which is what evolution is all about. In addition, male chimps give females that are waving these red flags of fertility first chance at high-protein food such as meat.

So why would our ancestors give this up? Szalay and graduate student Robert Costello have a simple explanation. Women gave heat up, they say, because our ancestors stood up. Fossil footprints indicate that somewhere around 3.5 million years ago hominids—non-ape primates—began walking on two legs. "In hominids, something dictated getting up. We don't know what it was," Szalay says. "But once it did, there was a problem with the signaling system." The problem was that it didn't work. Swollen genital areas that were visible when their owners were down on all fours became hidden between the legs. The mating signal was lost.

"Uprightness meant very tough times for females working with the old ovarian cycle," Szalay says. Males wouldn't notice them, and the swellings themselves, which get quite large, must have made it hard for two-legged creatures to walk around.

Those who found a way out of this quandary, Szalay suggests, were females with small swellings but with a little less hair on their rears and a little extra fat. It would have looked a bit like the time-honored mating signal. They got more attention, and produced more offspring. "You don't start a completely new trend in signaling," Szalay says. "You have a little extra fat, a little nakedness to mimic the ancestors. If there was an ever-so-little advantage because, quite simply, you look good, it would be selected for."

And if a little nakedness and a little fat worked well, Szalay speculates, then a lot of both would work even better. "Once you start a trend in sexual signaling, crazy things happen," he notes. "It's almost like: let's escalate, let's add more. That's what happens in horns with sheep. It's a particular part of the body that brings an advantage." In a few million years human ancestors were more naked than ever, with fleshy rears not found in any other primate. Since these features were permanent, unlike the monthly ups and downs of swellings, sex was free to become a part of daily life.

It's a provocative notion, say Szalay's colleagues, but like any attempt to conjure up the past from the present, there's no real proof of cause and effect. Anthropologist Helen Fisher of the American Museum of Natural History notes that Szalay is merely assuming that fleshy buttocks evolved because they were sex signals. Yet their mass really comes from muscles, which chimps don't have, that are associated with walking. And anthropologist Sarah Blaffer Hrdy of the University of California at Davis points to a more fundamental problem: our ancestors may not have had chimplike swellings that they needed to dispense with. Chimps and bonobos are only two of about 200 primate species, and the vast majority of those species don't have big swellings. Though they are our closest relatives, chimps and bonobos have been evolving during the last 5 million years just as we have, and swollen genitals may be a recent development. The current unswollen human pattern may be the ancestral one.

"Nobody really knows what happened," says Fisher. "Everybody has an idea. You pay your money and you take your choice." —*Joshua Fischman*