



Female bonding boosts infant baboons' chances of survival

Fairer sex drove social evolution

ROBERT ADLER

FEMALES have been in the vanguard of primate evolution. Their "people skills" have driven both the evolution of larger primate social groups, and the higher intelligence that individuals require to live in such groups.

Biologists have long suspected this may be the case, but three studies have finally confirmed the idea. It is likely that females drove the evolution of human society and intelligence in much the same way.

Primatologist Joan Silk at the University of California, Los Angeles, and her collaborators Susan Alberts and Jeanne Altmann found that female baboons with strong social bonds raised more offspring to the age at which most could survive to maturity. The researchers analysed 16 years of observations of baboons living at the foot of Mount Kilimanjaro in Kenya. While males join other groups and form shorter-term relationships, females stay with the group they are born into and form lifelong ties with each other, shown by physical closeness, grooming and coalitions.

Nearly 25 per cent more of the offspring of highly sociable females survived their first year compared with those of less sociable mothers (*Science*, vol 302, p 1231). The youngsters benefited regardless of environmental changes and their mother's status.

Higher-ranking primate males father more offspring, but this is the first time female bonding has been shown to increase reproductive success independent of rank, says Silk.

Managing relationships amid the dramas of primate life also requires brainpower, and again, females lead the way. Biologist Thore Bergman at the University

of Pennsylvania, Philadelphia, and his team tested the social intelligence of free-living baboons. The researchers knew that a female's rank depends primarily on her family, with individual characteristics coming second. When crossed, a higher-ranking female grunts aggressively, usually followed by submissive squeals from the lower-ranking adversary.

The researchers tricked baboons into thinking this hierarchy had been reversed, by recording sequences of grunts and squeals, and playing them back in a different order.

Intriguingly, the context of the situation dictated how the baboons reacted. Unrelated females reacted more strongly to a simulated rank reversal between members of different families – an event likely to upset the whole group – than to a simulated reversal within a family (*Science*, vol 302, p 1234).

Bergman links the cognitive skills that his team observed to the evolutionary mechanism found by Silk and her colleagues. "The evolutionary pressure suggested by Silk's findings probably contributed to the evolution of the types of complex cognitive abilities we found," he says.

And according to a third research group, that evolutionary pressure to be social pervades the primate world. Patrik Lindenfors at the University of Virginia, Charlottesville, and his team studied a primate family tree, which dates when each species evolved into another. When new species evolved that were typified by larger groups of females, male group size also increased, but only after a significant time lag (*Proceedings of the Royal Society B*, DOI: 10:1098/rsbl.2003.0114). It is female group size that responds to natural selection, says Lindenfors. "Males seem to tag along." ●

www.nhm.ac.uk/darwincentre

The impact of global warming?

A solution to blindness?

A cause of crop blight?

The elimination of Bilharzia?

The effect of acid rain?



While we're looking for the answers, you get to ask the questions.

The Darwin Centre takes you behind the scenes of the Natural History Museum, where you can examine the world's finest natural history collection and meet the leading scientists that work with it every day. Quiz them about their findings at our daily live events. Admission is free. Come and see natural history being made.

Darwin Centre
AT THE NATURAL HISTORY MUSEUM