

Why do humans and apes cradle babies on their left side?

WHEN THEY cradle a baby, 80 per cent of women hold it against the left side of their body, regardless of whether they are left- or right-handed. Now researchers have discovered the female chimpanzees and gorillas show the same bias (*Animal Behaviour*, vol 39, p 1224). The behaviour may be telling us that the brains of the great apes are organised in a very similar way to humans, with the left and right side carrying out specialised jobs.

John Manning and Andrew Chamberlain of the University of Liverpool wondered whether cradling a baby on the left-hand side was unique to humans. In the course of their research, they studied chimpanzees, gorillas and orang-utans and gibbons in zoos, and looked at films and photographs of these species in the wild. They found that most chimpanzee and gorilla mothers, and probably also orang-utans, have a strong preference for the left-hand side.

According to Manning and Chamberlain, this indicates that the behaviour probably originated in the common ancestor of African apes and humans, between 6 and 8 million years ago. If this is so, it predates by some time the origin of a bias in humans towards right-handedness. This is a characteristic that appears to be unique to our species.

The reason why left-handed cradling has evolved is controversial. The traditional explanation is that it places the baby over the mother's heart, and that the sound of the heartbeat keeps the baby quiet and manageable. Manning and Chamberlain are not happy with this explanation, however.

For a start, the two researchers are not convinced that the heartbeat really is localised on the left-hand side of humans. The heart's sound comes from the closure of

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its valves, they say, and these are situated almost directly under the sternum, in the centre of the chest.

Manning and Chamberlain are also not

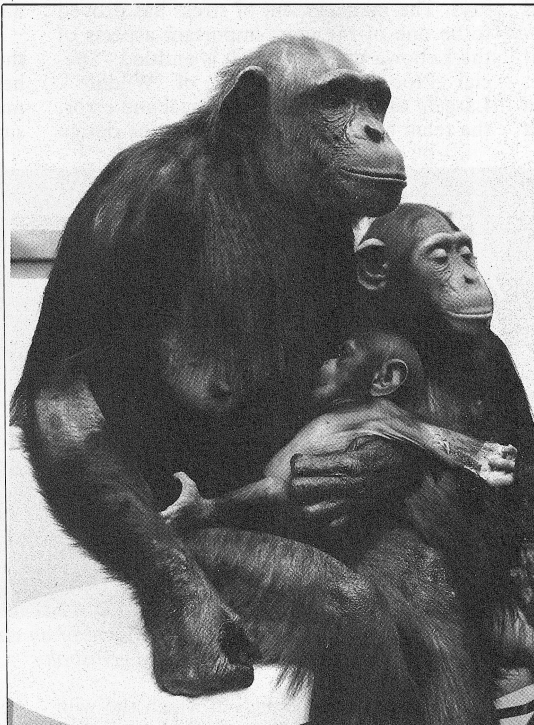
carry out their work throughout the day.

Manning and Chamberlain also take issue with Lee Salk, who in the 1960s and 1970s showed that the noise of a heartbeat will quieten a baby. According to the researchers, many other sounds will quieten a baby just as effectively.

Manning and Chamberlain prefer to explain left-side cradling of babies in terms of the way the brain is organised. Biologists have long known that the left and right hemispheres of the brain do not do identical jobs, a phenomenon known as lateralisation. In humans, one of the differences between the hemispheres is that the right half of the brain specialises in the decoding of information which has emotional significance. Much of the sensory input from the left visual and auditory fields is processed by the right half of the brain—and vice versa.

Manning and Chamberlain's idea is that by holding the infant to the left, a mother is able to monitor it with her left ear and visual field, and hence the side of the brain best able to interpret emotion. Furthermore, because there is evidence that lateralisation also applies to facial expression, the researchers suggest that this way of cradling has its advantages for the infant, too, allowing it to see the left-hand, most emotionally expressive side of its mother's face.

The two researchers are currently investigating their idea by asking human adults and children to cradle babies or dolls, while wearing eyepatches. If their idea is correct, blocking out the right-hand field of view should have no effect on side preference, but blocking out the left-hand field of view should reduce left-hand cradling. This would demonstrate in another species right-hand lateralisation for interpreting emotion. □



Left-hand cradling: apes may do it because the two sides of their brain perform specialised jobs

convinced that a cradled baby can easily hear its mother's heartbeat. They say that the preference for cradling a baby on the left side is seen even in African mothers who carry their infants on their backs while they

Older mothers have more left-handed babies

WOMEN OVER the age of 40 are more than twice as likely to give birth to left-handed babies than younger mothers, according to a recent Canadian study. This may be because older women are more likely to experience difficult pregnancies and arduous deliveries. Studies conducted over the past decade in Canada, Britain, Australia and the US show consistently that left-handedness increases with birth stress.

Stanley Coren, an experimental psychologist at the University of British Columbia in Vancouver, conducted a survey of 2228 first-year students at the university. He asked them a variety of medical and personal questions, including how old they were, what their mothers' ages were when they were born, and whether they were right- or left-handed.

Coren used mothers between the ages of 17 and 24 as his baseline. He found that mothers aged between 30 to 35, had a 25 per cent higher chance of their offspring being left-handed. If a mother is 35 to 39, how-

ever, the chance of left-handedness increases by 69 per cent. And if a mother is 40 or over, a baby has a 128 per cent higher risk of being left-handed (*New England Journal of Medicine*, vol 322, p 1673).

According to Coren, various stress factors common among older mothers could produce a left-handed child. For example, prolonged labour, breathing difficulty at birth, low birth weight and the biological trauma of being a twin or triplet. Coren believes that such "pathological" left-handers form a group that is separate from "genetic" left-handers, who inherit the trait from one or both of their parents.

The results of the Canadian study are more than a mere curiosity. According to Coren, they suggest that some form of "neurological disorganisation" underlies not just pathological left-handedness, but a range of problems which left-handers experience more than right-handers do—for instance, sleep disruptions, migraine headaches and allergies. They also tend on

average to reach sexual maturity a few months later than right-handers.

Coren's findings tie in with a study he carried out last year (*Journal of the American Medical Association*, vol 262, p 2682). "What we find is that, overall, the left-handers run about a half inch shorter and about 3 pounds lighter than the right-handed pitchers," Coren says. He believes that they have a slighter stature because the onset of maturation is delayed.

Both the current and earlier study are part of Coren's long-term investigation into the evolution and adaptive value of handedness in humans. While many other mammals, such as cats and monkeys, prefer their left or right paw, there is no preference in these species for right over left paw. "Humans are a whole different game," says Coren. "Nine out of ten individuals are right-handed, and that can be traced to early human evolution . . . You have to ask the question, what advantage would this be?"

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