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Left-handedness

A sinister advantage

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A possible reason why left-handedness is rare but not extinct

IT IS hard to box against a southpaw, as Apollo Creed found out when he fought Rocky Balboa in the first of an interminable series of movies. While "Rocky" is fiction, the strategic advantage of being left-handed in a fight is very real, simply because most right-handed people have little experience of fighting left-handers, but not vice versa. And the same competitive advantage is enjoyed by left-handers in other sports, such as tennis and cricket.

The orthodox view of human handedness is that it is connected to the bilateral specialisation of the brain that has concentrated language-processing functions on the left side of that organ. Because, long ago in the evolutionary past, an ancestor of humans (and all other vertebrate animals) underwent a contortion that twisted its head around 180° relative to its body, the left side of the brain controls the right side of the body, and vice versa. In humans, the left brain (and thus the right body) is usually dominant. And on average, left-handers are smaller and lighter than right-handers. That should put them at an evolutionary disadvantage. Sporting advantage notwithstanding, therefore, the existence of left-handedness poses a problem for biologists. But Charlotte Faurie and Michel Raymond, of the University of Montpellier II, in France, think they know the answer. As they report in the *Proceedings of the Royal Society*, there is a clue in the advantage seen in boxing.

As any schoolboy could tell you, winning fights enhances your status. If, in prehistory, this translated into increased reproductive success, it might have been enough to maintain a certain proportion of left-handers in the population, by balancing the costs of being left-handed with the advantages gained in fighting. If that is true, then there will be a higher proportion of left-handers in societies with higher levels of violence, since the advantages of being left-handed will be enhanced in such societies. Dr Faurie and Dr Raymond set out to test this hypothesis.

Fighting in modern societies often involves the use of technology, notably firearms, that is unlikely to give any advantage to left-handers. So Dr Faurie and Dr Raymond decided to confine their investigation to the proportion of left-handers and the level of violence (by number of homicides) in traditional societies.

By trawling the literature, checking with police departments, and even going out into the field and asking people, the two researchers found that the proportion of left-handers in a traditional society is, indeed, correlated with its homicide rate. One of the highest proportions of left-handers, for example, was found among the Yanomamo of South America. Raiding and warfare are central to Yanomamo culture. The murder rate is 4 per 1,000 inhabitants per year (compared with, for example, 0.068 in New York). And, according to Dr Faurie and Dr Raymond, 22.6% of Yanomamo are left-handed. In contrast, Dioula-speaking people of Burkina Faso in West Africa are virtual pacifists. There are only 0.013 murders per 1,000 inhabitants among them and only 3.4% of the population is left-handed.

While there is no suggestion that left-handed people are more violent than the right-handed, it looks as though they are more successfully violent. Perhaps that helps to explain the double meaning of the word "sinister".

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