

In this issue

Not a passing phase?

This issue carries two articles by P. Hariharan and coworkers (page 731 and 746), which bring out yet another aspect of a theme which *Current Science* readers have seen before. The 25 August 1994 issue carried many articles on the Pancharatnam optical phase and its quantum cousin, the Berry phase. While the main emphasis in most earlier work is on concepts, the present article (page 746) brings the subject down to earth by reaching up to the stars. Michelson's 6 m stellar interferometer of the nineteen twenties has been reborn in the current generation of long baseline (up to 400 m) stellar interferometers. The rule, from Michelson's time, has been to keep the paths and phases adjusted to measure fringes in the face of a fickle atmosphere and less than ideal mechanical systems. And here the geometric phase steps in to offer a new strategy.

Rajaram Nityananda

Leviathan, natural selection and ethics

'And the moral of this is ... the more there is of mine, the less there is of yours!'

The Duchess, in
Alice in Wonderland

We live in very troubled times. An age that is increasingly plagued by a sharp divide between the haves and the have-nots. A

world where the line between justice and injustice is often blurred. We seem to have lost the ability to look into ourselves and ask what we have taken from others, and at what cost. Concepts and actions that have traditionally been believed to be unethical, to be immoral, no longer appear to be so.

In a timely and thought-provoking review, on page 750, Renee M. Borges traces the history of our thinking on the origins and development of ethical behaviour with particular emphasis on the possible evolutionary routes to human morality. The journey begins with the Greek historian Herodotus – with a story that beautifully illuminates the relative nature of human moral concepts – and moves through the thinking of philosophers like Hobbes, Rousseau and Hume to finally encompass the evolutionary perspectives of Darwin, Huxley and Maynard Smith. This is obviously a difficult journey, but as the author deftly moves on, she makes us think – about war and peace, about individual actions and social contracts, about selfishness and altruism, cooperation and reciprocity. Borges then focusses her attention on game theory, a way of thinking adopted by evolutionary biologists from economists, in which models of individual conflict and cooperation are closely examined to see whether they can explain the evolution of our so-called ethical behaviour.

The review addresses a number of fascinating issues, and provokes us to reflect more deeply,

Is it possible, for example, to discover a biological origin for the codes of conduct that we believe are morally 'correct'? Are such codes now locked in our brains, forced to manifest themselves through our behaviour? Why then have the concepts associated with ethics and morality changed across cultures, across eras? Is it entirely because of our genes that we are selfish, and is it cultural ideology, somehow freed from the clutches of those genes, that make us altruistic? Does human altruism really exist? Have I been taught from my childhood to be nice to others because somehow collective knowledge suggested that it is good for the greater society to be so? Do I do good to others only in the hope that they will return the favour some day? Or, is the feeling of happiness that I invariably get when I am nice to someone else a peculiarly human attribute free from evolutionary moorings? Who can tell whether this happiness prolongs my survival and makes a better life for my children, thus bringing us back to those all-pervasive genes once again? Are human beings the only species that defies evolution every time a contraceptive is used, as Dawkins proposed earlier? Is man, therefore, truly 'free', as Borges suggests? Or, is it all an illusion? If it is so, what purpose does such an illusion serve? Or, is this a wrong question to ask? Biology, psychology, philosophy, religion – so many answers to the same problem!

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