

Spite? It's all down to the nasty genes

JAMES REYNOLDS
SCIENCE CORRESPONDENT

SPITEFUL people can now be excused for their behaviour. It's not their fault: it's in the genes.

For centuries great writers the world over have made us aware of the unique human failings which separate us from the rest of the animal kingdom.

In more recent times, with the advent of television programmes which celebrate cruelty, spiteful heroines such as Anne Robinson have emerged.

And so it is that spite, or the intention to harm or frustrate people even if it results in harm to oneself, has long been recognised as a particularly nasty trait.

But research suggests that, as much as we might like to rid ourselves of this characteristic, it is ingrained in the very fabric of our genes and also more common in the animal kingdom than previously thought.

Experts have discovered a "spiteful gene" which causes organisms to harm others – and themselves – in order to help their closest relatives.

Researchers found that bacterial cells and some insects will kill even near relatives to ensure the survival of their closest kin.

The existence of spiteful behaviour – as opposed to selfish behaviour, in which organisms do anything to benefit themselves – has been debated in the past, but was largely dismissed as implausible.

However, the study by a team from Edinburgh University has found the behaviour to be much more common than previously thought.

The research appears to crush the notion that most species inhabit a harmonious world where they co-operate with one another to sustain life. It also supports the theory presented in the book by Richard Dawkins, *The Selfish Gene*.

Professor Dawkins' book was the first to set down the argument that the world of the selfish gene is one of savage competition, ruthless exploitation and deceit. In effect, he was claiming that we are at the mercy of our genes, and as animals we exist solely for the preservation of genes and are nothing more than their survival machines.

The new study looks at several species, including bacteria, ants and wasps, and shows spite is more likely to occur in situations where organisms compete for limited resources.

Andy Gardner, of the university's Institute of Cell, Animal and Population Biology, said: "Spite has been neglected by social evolution theory, but we have shown that when there is strong competition between individuals it becomes a lot easier for spite to evolve.

"This means that individuals are happy to hurt their social partners, even if they hurt themselves in the process."

Researchers identified several examples of spiteful behaviour, including one that was previously described as altruism.

One example is when female organisms seek out their brothers and kill them so that their sisters (to whom they are genetically more closely related) can survive and transmit their genes to the next generation.

Mr Gardner said they had also found that bacteria would release toxins to kill other bacteria, thus destroying their closest kin's competition – but also killing themselves.

The PhD student said: "The findings show that rather than the actions being altruistic towards kin, they are actually spiteful towards non-kin."

The study is published in the *Journal of Evolutionary Biology*.