

To:
The Editor
Veterinary Record
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Science, psychology and anthropomorphism

Dear Editor

Twenty, or even ten years ago, the well reasoned letter from Mr. Alex Gough, *Symptoms or signs* (VR, June 25, 2005) might have passed largely without question. But today, in the face of current advances in neuroscience and experimental psychology, the assumption that because animals react in a similar (nociceptive) way as man to a (noxious) stimulus they therefore perceive it in the same way cannot be supported by present day knowledge. And as a consequence it is not sustainable to use this as an argument for an anthropomorphic explanation of animal behaviour.

While it is true to say that "people are animals" it is not the whole truth - comparison of genetic make-up is not enough. We may share 99% of our genes with chimpanzees, but it is humans who have university departments studying chimps not vice versa (indeed, even bananas share 50% of their genes with us!). Up to recently it has been the similarities not the differences that have been stressed. However, recent studies have pushed the pendulum away from an anthropomorphic interpretation of animal behaviour (Povinelli 2003). Humans are different after all; as an eminent neuroscientist (Preuss, 2005) puts it in his comprehensive review *What is it like to be human?*

"Humans are unusual in many aspects of their biology, yet neuroscientists have fostered the view that our brains are basically bigger better versions of a generalised primate or mammalian brain. **It is becoming increasingly clear that this is not the case** and that the brain underwent changes at many levels of organisation during the recent evolutionary history of the human lineage." (Emphasis in bold added)

This body of new scientific knowledge comes from a number of different scientific disciplines, which approach the subject from different angles but nevertheless support the same conclusions as to the limitations of animal awareness. For example psychological studies have revealed an inability of non-primate animals, at least, to demonstrate self awareness (Suddendorf and Whiten 2001). They show an inability to 'travel in time' as is required to collate and reflect upon past and present events (Roberts 2002). Thus they cannot worry over the future as we can while safe in bed (Greenfield 2001). Anatomical neuroscience provides a functional basis for this inability, namely the absence of, or possession of only a rudimentary, dorsolateral, prefrontal cortex (Preuss 1999). The prefrontal cortex is the seat of 'Working Memory', that is the facility to gather together at one time and from all over the brain, information relevant to an event/problem, so that it can be analysed worked on and even remote implications realised (Levi and Goldman-Rakic 2000) and c) Neuroanatomical studies have also demonstrated pain fibre linkage to the higher brain centres of non-primate mammals to be markedly different from man (Craig 2003).

But to bring the debate back to one's own experience in the field of veterinary medicine, there can be no veterinary surgeon in the course of his professional career that has not repeatedly observed and wondered at the rapid recovery of large and small animals from traumatic injury and surgery that would have had us humans in pain and discomfort for weeks. Forty years on LHT can still recollect skewering his foot on a spike whilst gaining entry to the steps of the Fitzwilliam Museum for a dawn photograph of his college boat crew. Five to ten minutes later his slightly numbed, prefrontal cortex having computed the event/problem in a uniquely human way, he passed out. But closer inspection later on at Addenbrokes Hospital revealed the spike

had passed cleanly between hallux and the second toe. The shoe was lacerated but not the patient! More recently one of our horses that had sustained a 4-5 inch deep and one foot long, laceration to his axilla stayed firmly on his feet.

While not denying consciousness to animals (extensively discussed in Dawkins, 1993), signs will not be symptoms as humans experience them and we should not pretend that they are. To do so is to deny modern scientific knowledge and to slide into anthropomorphism, which however critical, can lead to incorrect assumptions of animal needs, and needless interference in beneficial activities involving animals. It is misplaced anthropomorphism, for example, that spawns bravery awards for animals.

Yours sincerely

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Craig A D (2003) A new view of pain as a homeostatic emotion, *Trends in Neuroscience*, **26**, 303-308

Dawkins M S (1993) *Through our eyes only: the search for animal consciousness*, W.H. Freeman/Oxford University Press.

Levy R. and Goldman-Rakic P. (2000) Segregation of working memory functions within the dorsolateral prefrontal cortex, *Experimental Brain Research*, **133**, 23-32

Greenfield, Susan (2001) *The private life of the brain*, p.45, Penguin,

Povinelli D J (2003) *Folk physics for apes*, Oxford

Preuss T M (1999) What's Human about the Human Brain, In, *The New Cognitive Sciences* Ed; (M.S. Gazzaniga, MIT Press

Preuss T M (2005) What is it Like to be a Human? In, *The Cognitive Neurosciences III*, Third Edition. (M.S. Gazzaniga, editor) Cambridge, MA: MIT Press, (in press)

Roberts W A (2002) Are animals stuck in time? *Psychological bulletin*, **128**, 473-489

Suddendorf T and Whiten A. (2001) Mental evolution and development: evidence for secondary representation in children, great apes and other animals, *Psychological Bulletin*, **127**, 629-650