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The sensory-motor basis of cognitive evolution and ontogeny

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1990: PhD University of St Andrews, UK - baboon behavioural ecology

1989-1992: Lecturer, Biological Psychology, University of Sheffield, UK.

1993-present: Department of Anthropology, Durham University (1993 Lecturer; 1997 Reader; 2005 Full Professor).

2011-2013: President, European Human Behaviour and Evolution Association

Robert Barton is interested in brain evolution and evolutionary neuroscience, cognition, human and primate behaviour, sexual selection, the evolution of reproductive strategies, and the evolution of sleep patterns. He developed and tested the 'Visual brain hypothesis' for primate brain size evolution, and has recently become interested in the underestimated role of the cerebellum in brain evolution and cognition. Robert Barton is currently writing a book on 'Cognitive Evolution and the brain' (Funded by a Leverhulme Trust Research Fellowship, 2012-13).

Résumé de la conférence

Piaget recognised that a deep understanding of human cognition requires the integration of knowledge about phylogenetic and ontogenetic processes. Recently, powerful computational comparative methods have shed new light on phylogenetic processes. I apply these methods to studying the evolution of the primate brain and integrate the results with studies of ontogeny. The results overturn some entrenched ideas about brain evolution, in particular repudiating the notion that neuro-cognitive evolution primarily involved forebrain expansion and progressive increase in executive control. Instead, the results suggest that the brains of different species – including humans and their close phylogenetic relatives - support specialized forms of embodied cognition



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[résumé de la conférence de R. Barton, suite]

closely associated with their sensory-motor adaptations. In humans' recent ancestry, the cerebellum exhibits a striking acceleration in the rate of evolutionary expansion, and also shows extensive postnatal development associated with the ontogeny of motor and cognitive skills. These findings are congruent with Piaget's argument that cognitive development occurs through embodied interactions with the world, and, extending his argument, I suggest that what we think of as abstract cognition evolves and develops directly from such embodied interactions.

Lecture proposée

Barton, R. (2012). Embodied cognitive evolution and the cerebellum. *Philosophical transactions of the royal society, B*, 367, 2097-2107.