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THE EVOLUTION OF TECHNICAL INTELLIGENCE: PERSPECTIVES FROM THE *HYLOBATIDAE*

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Gibbons (*Hylobatidae*), taxonomically apes, have been largely ignored in cognitive research. However, given their unique phylogenetic position, representing an intermediary divergence between monkeys and great apes, and diversity of extant genera, they are ideally placed to study the evolution of cognitive abilities in the hominoid line. This presentation reports results from four cognitive experiments with 40 gibbons housed at the Gibbon Conservation Center, designed to assess understanding of the physical world through object manipulation and tool-use. All protocols complied with guidelines for ethical research outlined by the Association for the Study of Animal Behaviour. In a raking-in task, gibbons were presented with a tool that could be used to draw in an out-of-reach item and evidenced potentially insightful comprehension of object relationships when tool and goal were presented in direct alignment. They were also proficient in using a rake to retrieve a reward while avoiding a trap that presented an impediment to goal attainment; however, in general, they required a period of learning to perform consistently. Once the necessary relationships between tool and goal object were not physically situated in the task layout, gibbons performed poorly. This finding was supported by a dipping task where gibbons were provided with a transparent box containing a liquid reward and spatially distant sticks that could be used to access it. No individual developed dipping behaviour. These findings will be discussed in comparative perspective both within the hylobatid family where significant genera differences were apparent, and across the primate order in relation to brain morphology.

Keywords: Hylobatidae, cognitive evolution, tool-use, object-manipulation