

HOMO ARTIFEX: UNIQUELY HUMAN MANIPULATIVE SKILLS?D. Stout*Department of Anthropology, Emory University, Atlanta, Georgia, USA**Presenter's Email: dwstout@emory.edu*

Neither tool-making nor cultural transmission is unique to humans, yet there is a vast gulf between the accumulated complexity of modern human technology and that of any other living species. This disparity has been variously attributed to uniquely human manual, perceptual-motor, cognitive and social capacities, but differences in human and non-human object manipulation have yet to be adequately described and understood, let alone explained. Ongoing comparative studies are critical to addressing this problem, but are challenged by the multiplicity of accumulated behavioral differences between humans and other living animals making it difficult to discern evolutionary priority and interaction of specific factors. Archaeological evidence of Paleolithic stone tools offers a complementary data source which is better positioned to answer questions about the timing and context of the evolution of specifically human manipulative skills. Recent functional brain imaging studies of stone tool-making in humans have shown that the earliest known technology (Oldowan) is especially reliant on sensorimotor representation of the tool+body system, complex grip selection, and 3D shape perception. Later Paleolithic technologies (Acheulean) place additional demands on bimanual coordination and hierarchical organization of complex action sequences. Of particular interest is activation of the rostral inferior parietal lobe, a region recently shown to respond to observed tool use in humans but not macaques. These studies identify key behavioral capacities and brain systems for comparative investigation.

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