

THIRTY YEARS OF STONE HANDLING TRADITION IN JAPANESE MACAQUES: IMPLICATIONS FOR CUMULATIVE CULTURE AND STONE-TOOL USE EVOLUTION

J.-B. Leca¹, N.Gunst², M.A. Huffman³

¹University of Lethbridge, Alberta, Canada, ²Udayana University, Bukit Jimbaran, Bali, Indonesia, ³Kyoto University, Inuyama, Aichi, Japan

Presenter's Email: jbtleca@yahoo.com

Japanese macaques are known for their cultural behaviors, among which is stone handling (SH), a form of solitary object play involving the non-instrumental manipulation of stones through the performance of various stone-directed patterns. SH by the Arashiyama macaques is one of the most thoroughly documented behavioral traditions in nonhuman primates. At Arashiyama, a combination of longitudinal, comparative, and experimental approaches has provided sound evidence for long-term maintenance, inter-troop variability, and social transmission of a single cultural behavior. Since SH appeared in 1979, its diffusion within the group and across generations has been recorded at several points in time over a 30-year period. Between 1991 and 2004, the size of the SH repertoire almost doubled. We found an expansion of the contexts in which SH is performed, including the integration of SH with food-related activities and the gradual emergence of food-directed SH patterns. Compared to other troops of Japanese macaques, the Arashiyama troop presented a unique profile in terms of frequencies of SH patterns, i.e. its own SH tradition. Recent field experiments showed a stimulating effect of SH artefacts (such as piles of stones left on the ground by previous stone handlers) on the subsequent performance of SH. The transformation of the SH tradition, associated with a generational 'ratchet effect' could ultimately result in future stone-tool use, as stone-related behaviors become more deeply ingrained into the behavioral landscape of these macaques at the group level.

Keywords: object play, stone-tool use, artefact, culture