Mirror self-recognition in magpies

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Self-recognition, it has been argued, is a hallmark of advanced cognitive abilities in animals. It was previously thought that only the usual suspects of higher cognition—some great apes, dolphins, and elephants—were able to recognize their own bodies in a mirror. In this week's issue of PLoS Biology, psychologist Helmut Prior and colleagues show evidence of self-recognition in magpies—a species with a brain structure very different from mammals.

The researchers subjected the magpies to a mark test, wherein a mark is placed on the subject's body in such a way that it can only be seen in a mirror. When the magpies engaged in activity that was directed towards the mark (e.g. scratching at it), the researchers were able to conclude that these birds recognized the image in the mirror as themselves, and not another animal.

These findings not only indicate that non-mammalian species can engage in self-recognition behaviour, but they also show that self-recognition can occur in species without a neocortex. This area is thought to be crucial to self-recognition in mammals, and its absence in this case suggests that higher cognitive skills can develop independently along separate evolutionary lines.

Mammals and birds have developed vastly different brain structures, and future studies will be able to further examine how these structures converge to produce similar cognitive abilities.

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behavior in the magpie (Pica pica): Evidence of self-recognition. PLoS Biol 6(8): e202. doi:10.1371/journal.pbio.0060202
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