

Biologists find birdsong of isolates reverts to norm over several generations (w/Audio)

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In an experiment that points to a role for genetics in the development of culture, biologists at The City College of New York (CCNY) and Cold Spring Harbor Laboratory (CSHL) have discovered that zebra finches raised in isolation will, over several generations, produce a song similar to that sung by the species in the wild.

According to Dr. Olga Fehér, who conducted the experiment for her dissertation at CCNY, first generation male zebra finches raised in isolation produced an unstructured, often abnormal-sounding [song](#) that was quite different from the "wild-type" song. These birds were paired in a "tutor-pupil" relationship with a new generation of zebra finches that imitated their tutors' songs, but changed certain characteristics.

The alterations accumulated over generations. By the fourth generation the song had evolved toward the "wild-type" song," Dr. Fehér and colleagues report in the May 6 edition of *Nature*.

"We were surprised the song reverted back to the "wild-type" song so fast," she said.

"Culture appears to be encoded in the birds. It just needed a few generations to emerge," said Dr. Ofer Tchernichovski, CCNY Professor of Biology and Dr. Fehér's thesis adviser. He noted that the same pattern of evolution in the song occurred whether the subsequent generations of male birds were raised among female birds, who do not sing, and siblings in a colony setting or just among isolate males one-on-one.

A similar phenomenon has been observed among deaf children in Nicaragua. There, children developed a rudimentary sign language in the home that spontaneously evolved into a more sophisticated sign language when they were placed in a school with other deaf children.

Dr. Fehér concluded the experiment "identified some encoded traits of culture." This finding could be used to explain why different species develop different song cultures," Professor Tchernichovski added.

Future research could show whether "changes in gene expression, neuronal reorganization or neurogenesis associated with song development show orderly multigenerational progression during the evolution of song culture."

Source: City College of New York

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