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409a. Corpus callosum and interhemispheric transfer in the monkey (Macaca mulatta).[1] R. W. Sperry, Division of Biology, California Institute of Technology, Pasadena, California 91109.

Visual discriminations learned with the one eye, trasnferred readily to the untrained eye in 2 unoperated monkeys and in a monkey with midsagittal section of optic chiasm, anterior commissure, and anterior half of corpus callosum. Three monkeys having complete midline section of corpus callosum, hippocampal and anterior commissures, plus optic chiasma showed complete absence of transfer in similar visual tests involving color, size, brightness, 3-D shape, and flat pattern. They also learned to perform opposing discriminations, trained concurrently through the separate eyes, with no sign of interference. A corollary temperamental response, i.e. sulking, developed to a particular discrimination task, remained specific to the one eye. Somesthetic discriminations for softness, weight, and 3-D forms along with correlated motor learning transferred at high level from trained to untrained hand in the one of these 3 cases tested to date. Visuo-tactile discriminations (correct visual cue conditional on tactile cues and vice-versa) failed in this latter animal to transfer from trained to untrained eye. Removal of arm areas from R(ight) cortex in this same case following new tactile training to L(eft) hand markedly reduced transfer to R hand. Visuo-tactile discrimination performed with unparalyzed R hand and L eye remained unaffected ; whereas performance with R hand and R eye dropped to chance but quickly recovered within 100 trials to 90% correct.

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