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May 18, 2007

Best illusions

Returning to a previous topic via a reminder at *Bad Science*, the winners of [Best visual illusion of the year competition](#). They may appear a trivial amusement, but such illusions reveal significant information about how our visual processing system works. Michael Bach's [71 Optical Illusions & Visual Phenomena](#) provides many illusions, along with references to associated research. I rather like his view that "optical illusion" is rather pejorative, as if it's exposing a malfunction of the visual system. Instead, he argues that they reveal the workings of hard-wired visual processing that is extremely effective under normal situations).

A case in point is the McCollough Effect: looking at some coloured grids induces the appearance of coloured fringes on otherwise similar monochrome grids. The remarkable feature is that unlike ordinary after-images, it lasts for up to a day. As described here - [Chromatic chutes and ladders](#) - one theory is that it's something to do with our visual mechanisms for handling edge detection and chromatic aberration, and that neurotransmitters are involved. The paper's author, Bryan Keenedy, writes: "It is unlikely that our visual systems, having evolved over millions of years, would engage in such petty games for the delight of misleading us. Instead, these 'mistaken' perceptions are likely the result of systems that, at other times, are employed to good effect". You can try it out at [The McCollough Effect - An On-line Science Exhibit](#).

Yet another interesting effect is *change blindness*: you can see demos at the pages for [J. Kevin O'Regan](#) and the University of Illinois [Visual Cognition Lab](#). Under various circumstances - for instance, very slow changes, temporary blanking or a distracting overlay - large changes in a scene can go unnoticed. The latter case has nasty implications for the safety of, say, head-up windscreen overlays.

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