

## THE LOCH NESS AFTEREFFECT

Mark Wexler of the University of Paris V in France took third-prize honors with his Loch Ness aftereffect. He named it after a classic illusion that was known to the ancient Greeks and rediscovered in 1834 by Robert Addams at the Falls of Foyers, which are the waterfalls that feed Loch Ness in Scotland. Addams noticed that after he stared at the waterfalls for a while, stationary surfaces, such as the rocks and vegetation beside the falling water, appeared to drift upward.

In Wexler's illusion, the viewer stares at a red dot surrounded by a rotating ring of dashes. Suddenly the ring jumps in the opposite direction with a rapid rotation, before continuing to turn slowly in the original direction again. Wait—that's all you, baby! In reality, the ring's elements are simply reassorted at random. Unlike the illusory motion described by Addams, which is slower than the real movement that induces it, Wexler's faux motion is 100 times faster than the inducing movement.

Wexler's illusion is called an aftereffect because you perceive it once the physical motion stops—for instance, when you see spots after a camera flash—but here it works specifically for motion-sensitive neurons. Wexler says the illusion is related to how the brain matches the starting points of moving objects to the next points along the motion trajectory. Presented with a burst of random visual noise, the brain finds no consistent correspondences and is forced to take a guess at the best possible matches, which happen to be far away because of the randomization, resulting in the observer's perception of fast motion. Only future research will determine the specific neural underpinnings of this effect.

<http://illusionoftheyear.com/2011/the-loch-ness-aftereffect>



**JUMPING RING:** The dashes that make up a rotating ring are periodically rearranged in random fashion. The viewer's brain, unable to match the new arrangement with the expected trajectory, perceives this as a rapid backward rotation.



## MASK OF LOVE

Courtney Smith presented the mask of love illusion, created in collaboration with Gianni Sarcone and Marie-Jo Waeber of the Archimedes Laboratory Project in Genoa, Italy. A young girl in a Venetian mask pines for love. Or perhaps she is beyond the yearning period and has moved on to kissing. This type of illusion is called bistable because, as in the classic face-vase illusion, you may see either a girl or a couple, but not both at once. The visual system tends to see what it expects to see—only one mask is present, so you are much more likely to see a single face on first glance.

The illusion was discovered in an old photograph of two lovers sent to the Archimedes Laboratory. Sarcone, the leader of the group, saw the image pinned to the wall and, being nearsighted, thought it was a single face. After donning his eyeglasses, he realized what he was looking at. The team later paired the picture of the lovers with the beautiful Venetian mask. Luck does favor the prepared mind ... and the nearsighted.

<http://illusionoftheyear.com/2011/mask-of-love>

**SEEING DOUBLE:** Most people initially see one face here because of the surrounding mask. But look again, and you'll see two.

## (The Authors)

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