

After Images

These negative afterimages are caused when the eye's photoreceptors, primarily those known as cone cells, adapt from the overstimulation and lose sensitivity. Normally, the eye deals with this problem by rapidly moving small amounts (see: microsaccade), the motion later being "filtered out" so it is not noticeable.

THINGS TO DO AND NOTICE



Steadily fixate on the black lightbulb for thirty seconds or more. Try not to avert your gaze. Immediately turn your gaze to the white region on the right adjoining the bulb (or a blank white sheet of paper). You should see a glowing light bulb!

So What's Going On?

The glowing white light bulb you see on the white screen after staring at the black light bulb figure is called an afterimage. When you focus on the black light bulb, light sensitive photoreceptors (whose job it is to convert light into electrical activity) in your retina respond to the incoming light. Other neurons that receive input from these photoreceptors respond as well. As you continue to stare at the black light bulb your photoreceptors become desensitized (or fatigued).

Your photopigment is "bleached" by this constant stimulation. The desensitization is strongest for cells viewing the brightest part of the figure, but weaker for cells viewing the darkest part of the figure. Then, when the screen becomes white, the least depleted cells respond more strongly than their neighbors, producing the brightest part of the afterimage: the glowing light bulb. This is a

negative afterimage, in which bright areas of the figure turn dark and vice versa. Positive afterimages also exist.

Most afterimages last only a few seconds to a minute, since in the absence of strong stimulation, most nerve cells quickly readjust.

Desensitization of the retina can be important for survival. A constant stimulus is usually ignored in favor of a changing one by the brain, because a changing stimulus is usually more important. But desensitization also leads to afterimages.

Afterimages are constantly with us. When we view a bright flash of light, briefly look at the sun, or are blinded by the headlights of an approaching car at night, we see both positive and negative afterimages.

From <http://www.psychologie.tu-dresden.de/>

And many other examples of these are fun to try

<http://www.moillusions.com/>

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