Afterimage

Let's make some ghosts. Find something with a bright color in the room (something green would work best), and stare at it for about ten seconds. After that, put a white sheet in front of your eyes. Come on, really try it. In the name of science! I'll wait here . . . Did you see something floating on the page? It should look the same as the thing you stared at only dark and blurry like a ghost. Why can you still see something even though you are no longer looking at it?

Now think about jumping into a really hot bath. What happens? Your body wants to jump right back out again, right? It's way too hot, and it burns! I bet you already know how to get in the bath without feeling that burning. If you slowly dip your feet and then your knees and then the rest of your body . . . you will get used to it, and it won't feel so hot. The water is still hot, but your skin changes what it is feeling. Your skin does this for two reasons: 1. To make sure you can still feel if the water gets hotter or colder and 2. So that it does not hurt itself. Your eye works the same way. When you stare at something bright, like a super bright green sign, your eye can change how much of the green it sees by making a dark spot where you see the bright green. Your eye changes what it "feels." By "feeling" less of the green where the bright sign was, your eye protects itself. An afterimage is the color you see after you stare at something with bright colors and then look away. These "ghost colors" are your eye still trying to protect itself from the bright light you were staring at.

Your eye only sees in blues, reds, and greens. These three lights mix in hundreds of ways to make all the colors you see around you. You can mix the primary colors (red, blue, and green) of light together to make any color. If you stare at one of these primary colors, your eye will see less of that color to protect itself. That means you will also see more of the opposite colors. Look at something red, and you will see a mix of green and blue. Stare at something green, and you will see a mix of red and blue. Stare at something blue, and you will see a yellowish green. After the bright blue color shocked your eye, it is no
longer able to send that color signal for a short period, so you'll see the other two colors instead. Don't take my word for it. Try it out!

Rainbows are lovely; birds feathers are beautiful, and color is a feast for the eye. You may not know it, but color does a lot more than just look pretty. Our ability to see reds, blues, and greens helps us learn a lot more about the world than if we only saw in black, white, and gray. We use colors to help us to find food and stay away from things that can hurt us; but sometimes we cannot see the colors that we want to. You already know that your eye can see too much of a color and change the way it sees that color; but there are also times when we cannot detect color at all. When you detect something, you can tell that it is there. This is why people who try and find things are called detectives. Your eye can only see color when there's a lot of light. With very low amounts of light, we cannot detect colors. That's why at night, the world tends to look more like a black and white movie.

Did you know that some people can see too well? Their eyes see so much light that life becomes harder. For them, the sun is so bright it causes headaches. Those blue ghosts you see after staring at something a long time happens to them much more easily. They have to wear dark sunglasses or just stay away from bright light, but if they wear dark glasses inside, they can just make it worse. Their eyes are oversensitive. Something is oversensitive when it feels or senses too much. Part of the reason we see an afterimage is because our eyes are oversensitive to the colors we see. You can try this on your own. Look at something green for 30 seconds, and then look at something white. When we stare at something that's bright green, our eye changes what it sees and sees a little less green. This means that if we look at something white (which has red, green and blue bouncing off of it), we do not see very much of the green. What we see when we look at the white is the red and blue light, since our eye is blocking out some of the green.

Your eyes do amazing things. They can see the colors that are important to keep you alive. It can warn you of danger or find something good to eat. It can even keep a picture of something in your head long after you have stopped looking at it. Our eyes can do such incredible things; some scientists even consider them to be a part of the brain! In short, your eyes are a couple of very smart detectives.

References:


