

A LINE ON LIFE

6/6/83, Updated 5/6/01

Eye of the Pirate

David A. Gershaw, Ph.D.

If you were to imagine a swashbuckling pirate, what would he look like? Beside the sword, boots and the beard, most of you would think of him with a *patch* over one eye. Why does he wear this patch? (No, it is not because his eye was gouged out in a sword fight.) The patch is to keep one eye **dark-adapted**.

To explain this, let us compare it to a situation that might be more familiar to you. When you were a child on a bright, sunny afternoon, did a friend ever open the side door of a movie theater, so you could sneak in without paying? (I realize that *you* would never do something like that!) Initially, you wouldn't be able to see anything and would have to grope your way to a seat, bumping into several people on the way. After sitting down for a while, your eyes gradually adapt to the lower level of light. Suppose that, 15 minutes later, your friend lets someone else in the side door. Since your vision has adapted, you can clearly see the new person coming into the theater. However, this new person is groping around blindly, as you did only a short time ago.

Something similar happens with the pirate. Suppose the pirate captain was below deck in a brightly lit cabin while on the high seas on a moonless night. From the crow's nest, a sailor yells, "*Sail off the port bow!*" (For you landlubbers, the bow is the front of the ship, and port is to the left of the bow.) The captain bounds up to the deck ready to give orders. However, it will take 15-30 minutes for him to adapt well enough to see what the sailor saw. By that time, he really might be sunk!

In contrast, if he had a patch over one eye, that eye would already be dark-adapted. Even going from the brightness of the cabin to the murky darkness of the open ocean, he would see the sail almost immediately. All he needs to do is *lift the patch* from his dark-adapted eye!

**If we are aware of our perceptual limitations,
we may be able to compensate for them.**

Similarly, if you plan to go into a dark area from brightly lit surroundings, close one eye for a period of time, before you enter the dark area. (You don't need to wear an eye patch.) This will at least partially dark-adapt the closed eye. When you enter the dark area and have trouble seeing, open the partially dark-adapted eye. You will be surprised how much it improves your vision.

Some people worry that they will bump into things, if they close one eye, because they have lost **binocular cues** – depth cues that require both eyes. However, most of our visual depth cues are **monocular** – they only require one eye – so you can get around easily with one eye closed. (If you don't believe me, try it.)

Night blindness is caused by this dark adaptation process taking much longer than usual. By the time a normal person is completely dark adapted, the "*night-blind*" person still has not adapted well enough to see. Therefore, he seems "*blind*."

Some cases of night blindness are caused by a deficiency of **vitamin A**, a basic chemical involved in seeing. Carrots have a great deal of vitamin A, so eating carrots may help to reduce night blindness. (You have probably heard that eating carrots helps your vision.) However, if your vision is normal, more carrots will not improve it.

So the next time you see someone walking toward you with one eye closed, it does not necessarily mean that they are winking or they have something in their eye. They may just be adapting to the dark.
