



Let me tell you... about emulating Leonardo.

I have always admired Leonardo da Vinci. He experimented in both art and science, and experienced his share of both success and failure. I admire that attitude to be unafraid, to pursue truth, to have faith in your observations, and to continue onward no matter what obstacles present themselves. In that way, I have always hoped to emulate Leonardo. Not only by doing art and science, but by pursuing each without fear in an effort to do some good.

As a scientist, I have been interested in the visual system and how the brain processes visual information. I have also studied nerve regeneration. Ironically, the week before completing my Ph.D. in Neuroscience at Temple University, I was diagnosed with multiple sclerosis (MS), a defining moment in my life. MS is a degenerative neurological disease that damages the central nervous system. It is not contagious and not often directly fatal, but it is unpredictable. Symptoms caused by MS vary in severity and duration and may range from blurred vision and numbness to blindness and complete paralysis. Although my disease has not significantly affected my vision, I do have partial paralysis in my legs, cannot stand without assistance and must use a wheelchair. The cause of MS is not yet understood and the form of the disease which I have has no proven effective treatment. Since my diagnosis, I have devoted myself towards understanding the disease through scientific research, but also through my art. I hope that my paintings may bring greater public awareness to progressive relapsing & primary progressive MS and encourage broader scientific research in these two areas. MS can be devastating to those who are afflicted with it and to their families, but like any major life-

changing event chronic illness can also bring new values, new appreciations, and new colors and textures into one's life.

There is a sharp distinction between art and science, and studying a disease through art is not the same as studying it through science. My art is about my own emotional, intellectual, and spiritual journey, and within that context MS plays a significant role. When I paint, I feel as though I am on a journey of discovery. I allow myself to think about problems in a different way. I hear the words of great people and imagine the journeys they have taken as I navigate my own course through an expression of color and texture. My paintings tell me about my journeys. They are a record of where I have been. And, they express the artistic side of myself. Dissimilar as we may be, both artists and scientists are creatures of observation. What some overlook, we take joy in discovering. Things perhaps not clearly understood, but things we believe to be real and open to interpretation. We are in constant struggle to describe what we observe. And, even after we convince ourselves and others that we have seen some truth and made sense of it, there is always some doubt. For the artist and scientist both recognize how imperfect our human capacity is as we search for moments of understanding in a sea of complexity. A friend of mine once referred to a painting I had just finished as being "either a complete abstraction or a landscape, but either way poetry." I was amused by my friend's comment, and although I have never painted poetry, I do feel that my paintings convey a certain beauty, mystery and brevity. Since that time, Sophia (my German Shepherd Helper Dog) and I have often created works of art together. See if you can correctly guess which paintings are Sophia's "official" signature pieces.

Thank you for visiting our new show "Voyage of Discovery – The Valley" at Cedar Crest College Cressman Gallery (February 1st – June 3rd 2007) & for joining our fight against MS in 2007! The local **MS Walk** in Allentown, PA takes place at the **Rose Garden Pavilions on Sunday, May 6, 2007**. If you'd like to join Sophia's "Good Shepherd Team" please call Team Captain **Jerry Werner** at **1-610-776-3585** to reserve a pledge sheet & "Good Shepherd Team" T-shirt. We hope to see you and your friends at the MS Walk later this Spring! Of course, doggie cookies are always appreciated.

Your friends, Brett & Sophia @ BrokenArtGallery.com



Published in part: **InsideMS** National MS Society Magazine
(October - November 2002 issue)



Say the colors you see & not necessarily the words as fast as u can!

Red
Yellow
Orange
Green
Blue
Purple
Green
Red
Blue
Yellow
Green
Purple
Blue
Orange
Red
Green
Red
Yellow
Orange
Green
Blue
Purple
Red
Yellow
Orange
Green
Blue
Purple
Red
Yellow
Orange
Green

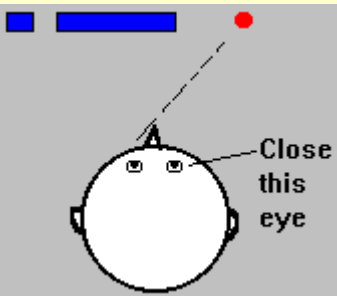
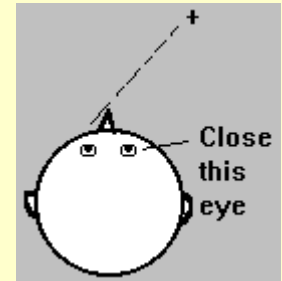


Find Your Blind Spot

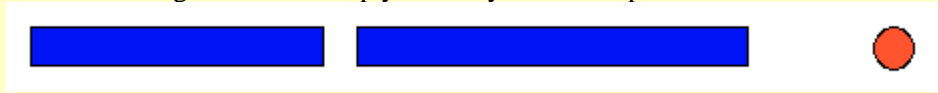
One of the most dramatic visual experiments to perform is the demonstration of the blind spot. The blind spot is the area on the retina without receptors (receptors respond to light). Therefore an image that falls on this region will NOT be seen. It is in this region that the optic nerve exits the eye on its way to the brain. To find your blind spot, look at the image below or draw it on a piece of paper:



To draw the blind spot tester on a piece of paper, make a small dot on the left side separated by about 6-8 inches from a small + on the right side. Close your right eye. Hold the image (or place your head from the computer monitor) about 20 inches away. With your left eye, look at the +. Slowly bring the image (or move your head) closer while looking at the +. At a certain distance, the dot will disappear from sight... this is when the dot falls on the blind spot of your retina. Reverse the process. Close your left eye and look at the dot with your right eye. Move the image slowly closer to you and the + should disappear.

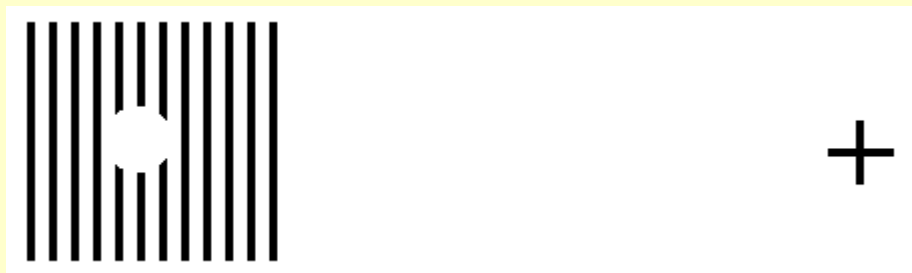


Here are some more images that will help you find your blind spot.

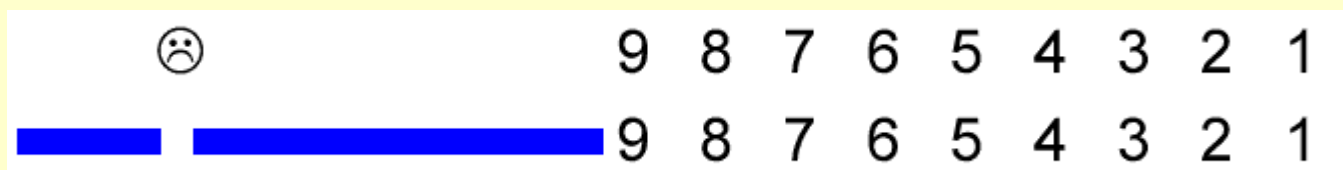


For this image, close your right eye. With your left eye, look at the red circle. Slowly move your head closer to the image. At a certain distance, the blue line will not look broken! This is because your brain is "filling in" the missing information.

This next image allows you to see another way your brain fills in the blind spot. Again, close your right eye. With your left eye, look at the +. Slowly move your head closer to the image. The space in the middle of the vertical lines will disappear.



In the next two images, again close your right eye. With your left eye, look at the numbers on the right side, starting with the number "1." You should be able to see the "sad face" (top image) or the gap in the blue line (bottom image) in your peripheral vision. Keep your head still, and with your left eye, look at the other numbers. The sad face should disappear when you get to "4" and reappear at about "7." Similarly the blue line will appear complete between "4" and "7."



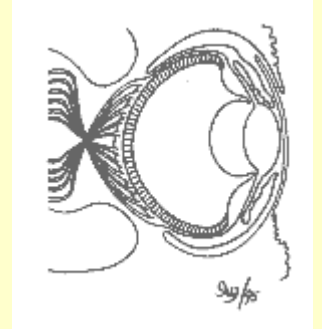
Here is another image to show your blind spot. Close your right eye. With your left eye, look at the +. You should see the red dot in your peripheral vision. Keep looking at the + with your left eye. The red dot will move from the left to the right and disappear and reappear as the dot moves into and out of your blind spot.



Did you know?



An octopus does not have a blind spot! The retina of the octopus is constructed more logically than the [mammalian retina](#). The photoreceptors in the octopus retina are located in the inner portion of the eye and the cells that carry information to the brain are located in the outer portion of the retina. Therefore, the octopus optic nerve does not interrupt any space of retina.



Octopus Eye (Image courtesy of Biodidac)



X-Ray Vision???

Do you have "X-Ray Vision?" You may be able to see through your own hand with this simple illusion. Roll up a piece of notebook paper into a tube. The diameter of the tube should be about 0.5 inch. Hold up your left hand in front of you. Hold the tube right next to the bottom of your left "pointer" finger in between you thumb (see figure below).

Look through the tube with your RIGHT eye AND keep your left eye open too. What you should see is a hole in your left hand!! Why? Because your brain is getting two different images...one of the hole in the paper and one of your left hand.

Depth Perception - I

Two eyes are better than one, especially when it comes to depth perception. Depth perception is the ability to judge objects that are nearer or farther than others. To demonstrate the difference of using one vs. two eye to judge depth hold the ends a pencil, one in each hand. Hold them either vertically or horizontally facing each other at arms-length from your body. With one eye closed, try to touch the end of the pencils together. Now try with two eyes: it should be much easier. This is because each eye looks at the image from a different angle. This experiment can also be done with your fingers, but pencils make the effect a bit more dramatic.

Drop IT! - Depth Perception - II

Here's another demonstration of the importance of two eyes in judging depth. Collect a set of pennies (or buttons or paper clips). Sit at a table with your subject. Put a cup in front of your subject. The cup should be about two feet away from the subject. Have your subject CLOSE one eye. Hold a penny in the air about 1.5 ft. above the table. Move the penny around slowly. Ask your subject to say "Drop it!" when he or she thinks the penny will drop into the cup if you released it. When the subject says "Drop it," drop the penny and see if it makes it into the cup. Try it again when the subject uses both eyes. Try it again with the cup farther away from the subject. Try it again with the cup closer to the subject. Compare the results of "10 drops" at each distance.



Questions:

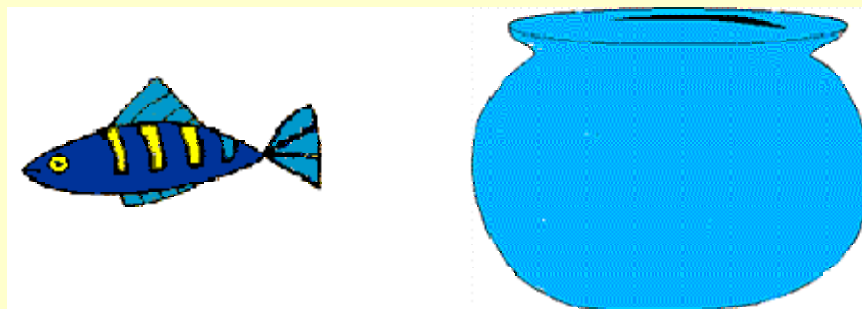
- Is there improvement with two eyes?
- Is there improvement with the cup is closer to the subject?

Shifting Images

Here's another way to demonstrate how different images are projected on to each eye. Look at an object in the distance (20-30 feet away), such as a clock on the wall. Close one eye, hold up your arm and line up your finger with the object. Now without moving your finger or your head, close the opened eye and open the closed eye. The object in the distance will appear to jump to the side...your finger will no longer be lined up. This shows that different images fall on each eye.

After Images

Can you put the fish in the bowl? Try this. Stare at the yellow stripe in the middle of the fish in the picture below for about 15-30 sec. Then move your gaze to the fish bowl. You should see a fish of a different color in the bowl. It helps if you keep your head still and blink once or twice after you move your eyes to the bowl. The afterimage will last about five seconds.



What's Happening: in the [retina of your eyes](#), there are three types of color receptors (cones) that are most sensitive to either red, blue or green. When you stare at a particular color for too long, these receptors get "tired" or "fatigued." When you then look a different background, the receptors that are tired do not work as well. Therefore, the information from all of the different color receptors is not in balance. Therefore, you see the color "afterimages."
