



## EYESIGHT, LIGHT, AND ENLIGHTENMENT IN NATURE

The Southern African Society of Cataract and Refractive Surgeons hosted its biennial meeting in Johannesburg in early August.

I and several friends attended the meeting and afterward we went on a safari to a game reserve that has access to all the wild animals of South Africa's Kruger National Park. We had an amazing time seeing lions, leopards, elephants, rhinos, and buffalo on each of the 3 days we were there. It was a grounding life experience, and none of us left the Thornybush Game Reserve without Africa having touched his or her soul.

As most of us were ophthalmologists, conversations eventually revolved around animals' eyes and the lessons we can take from nature and apply to our own lives. The discussion among our party of 10, which included Matthias Maus, MD; David T.C. Lin, MD, FRCSC; Guy M. Kezirian, MD, MBA, FACS; Michael Mrochen, PhD; and Aylin Kiliç, MD, touched on the following topics.

We were blown away by how the rangers could track animals by studying their spoor, or tracks. From this information they could often tell the species of an animal, whether it was male or female, and whether it was walking in a group or alone. We realized that the skills required to be an expert animal tracker are very much like the skills required of ophthalmologists to read corneal topographies or retinal OCT scans: It comes down to pattern recognition.

We also came to appreciate the value of avoiding eye contact and maintaining composure when a lion or leopard is close and staring directly at one. The best defense is to stand completely still and face the predator head on. If you turn and run, it is seen as a sign of weakness, and the predator pounces. We also noted how well some animals see at night and how good their visual

acuties are. Other animals, such as the rhinoceros, have poor eyesight, but, given that they mostly have no enemies and spend most of their time eating the grass around them, it's probably not a huge problem for them.

Another optical phenomenon the group observed was the clarity of the night sky because of the lack of light pollution in these remote areas. Sunrises and sunsets were spectacular. We discussed the Tyndall effect, through which the sun appears red at sunrise and sunset (Figure 1), as red light has the longest wavelength in the visible spectrum and is refracted the least. Many people erroneously believe that the sunset is red because of dust in the air.

We observed an example of natural teamwork in the way termites create an amazing nest, where they work together and collaborate in ways that are not often witnessed in our human world. These termite nests rise above the ground, but we were told that their extension below ground level is up to seven times the height of the visible termite hill.

The final lesson that we took was the value of patience. We saw a leopard (Figure 2) stalking an impala, a common South African antelope. Impalas are athletic and agile, often outwitting their predators to escape an attack. The key to success for the predator is to remain unseen, out of the impala's line of sight, and so quiet as not to be heard. The more patient the leopard is, the more the chance of success. We learned that the leopard's success rate at making such a kill was significantly less than 50%. Three of every four attempts are futile, leaving the predator empty-handed and still hungry. So patience is a virtue in the African bush, necessary in order to survive. Patience also has value in our day-to-day interactions, particularly when we work with patients.

We learned that it is better to *own* your vision rather than to *rent* it with spectacles or contact lenses. In the bush, the animals do not have access to visual aids, so those without good eyesight operate at a disadvantage. This fact gave us all new insight into the gift that vision correction specialists provide their patients: ownership of vision. It is something that I have started to discuss with patients and I am pleased with the immediate resonance they have with the concept. If we use this terminology more as a collective, there is a chance that the concept of vision correction surgery will find more support among the population at large.

We all enjoyed a wonderful time of camaraderie, observing nature at its best. Being able to see nature's wonders play out in front of us made us all appreciate our own eyesight. If you get the opportunity to go on a safari, grab it with both hands and go clear your mind in the African bush. ■



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Figure 1. An African sunset.



Figure 2. A leopard in the Thornybush Game Reserve.

Courtesy of Stephanie Lin, daughter of David T.C. Lin, MD, FRCSC