



# Do you see your sights clearly?

## - *astigmatism and shooting*

by Alek Wadi

**A**fter more than 40 years of shooting pistols and rifles with open or peep sights, I sadly noticed that my vision, like me, is ageing. I wondered if I was developing some kind of nearsightedness or farsightedness but, as I soon learned, there was much more to it.

Fortunately, there are easily accessible remedies these days. The following piece details how my vision had been affected and deteriorated. It may help you on your way if you too have noticed vision problems.

### **Near and farsightedness**

First, I wondered if my vision was affected by myopia (nearsightedness) or by hyperopia (farsightedness). If I were myopic only, then I may be able to fully and correctly see my rear-sight when aiming but I may not see clearly the front-sight and the target would be out of focus. However, with hyperopia, I would be able to see clearly distant objects very well such as the target but would not be able to focus on objects that are up close such as my sights at the end of my arm. In my case, neither of these two simple vision tests fully fitted my current vision defect.

Both myopia and hyperopia may affect young and older shooters, but this is no real drama as it can be easily corrected with appropriate glasses after consulting with an optometrist.

### **Using a shooting iris**

When shooting, you want to have a perfectly clear image of the front-sight at the end of your barrel and a slightly blurred image of the rear-sight close to you and of the target far away - a quandary for your eye. On the range, you may have seen shooters using an iris. An iris is a small implement you can affix to your spectacles in

front of your aiming eye. It acts like the aperture of your camera (the old manual one) and simply improves the depth of field of your vision by closing and adjusting the aperture of the iris.

Does an iris help? With an iris on and properly adjusted, you may now be able to see clearly your rear-sights and maybe front-sights. However, it is a temporary help with limitations and does not correct other defects of your eyes. Using an iris may work fine with good daylight, but the drawback when using an iris is that by closing the diaphragm de facto, you are reducing the amount of light getting to your eye. Hence it is not advisable to use the iris under poor lighting conditions. Note too that if clarity diminishes as iris size is reduced, it's a good clue for a possible cataract, for which a visit to your preferred optometrist is well worth the trip.

### Still blurry

There may be more to your vision, as I later discovered. In early 2016, I decided to acquire a red dot implement with the intention of

fitting it on a hunting rifle. When I received the equipment, I unpacked it carefully, read the instruction manual from A to Z, installed the battery, immediately switched on the unit and saw a bright red dot. I played a bit with the different settings and felt that it was okay and could start mounting it on my rifle the next day.

However after some reflection, I was puzzled for two reasons: one was that the red dot size setting was not working (okay, it could happen with new equipment), but more baffling was that the red dot displayed appeared to be fuzzy, duplicated, even blurred and butterfly-like, not sharp to my liking and with a ghostly oblong vertical image. I thought that it was a manufacturer's defect, so I contacted the seller and asked for an exchange. They did so promptly without arguing, but they also asked me if I had astigmatism, which they felt could explain the blurred, oblong red dot I saw.

I switched on the newly arrived red dot unit and saw, to my surprise, still the same blurred oblong red dot. Then I remembered that

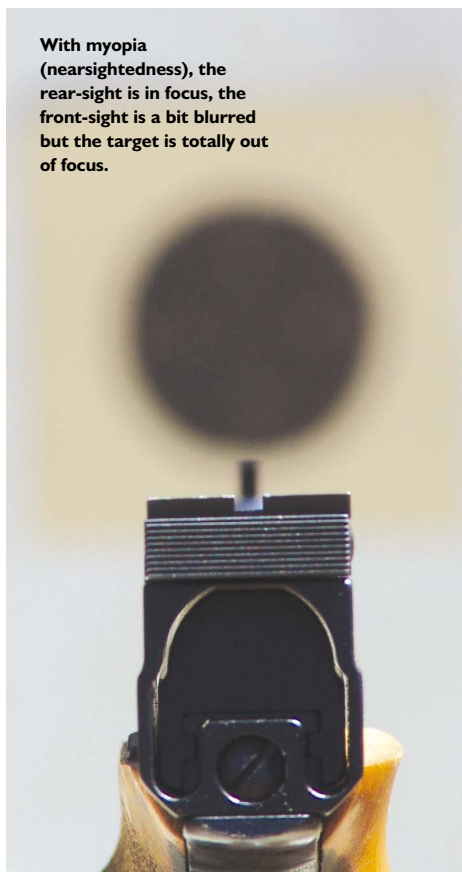
the manufacturer had asked about a possible astigmatism. Astigmatism? What is that? I soon consulted with my optometrist.

### The symptoms of astigmatism

If you are affected by astigmatism, your vision will be blurred or distorted to some degree at all distances. This could be without correction or even with what you think is an appropriate correction with spectacles. As an example, as shown in Figure 1, if you read a text with or without your (old) spectacles and you perceive the text as sharp as the one on the top left, your vision is good. But if you see one of the last three blurred images, then you may well be astigmatic and prompt action is needed.

Well, my vision wasn't too good, so I went to the range and prepared my pistol (empty chamber, no magazine and the slide open), took position on the firing line, and aimed. My front and rear sights as well as the target were definitely blurred with a halo, and this was with and without my old reading glasses. If you do have a vision like

**With myopia (nearsightedness), the rear-sight is in focus, the front-sight is a bit blurred but the target is totally out of focus.**

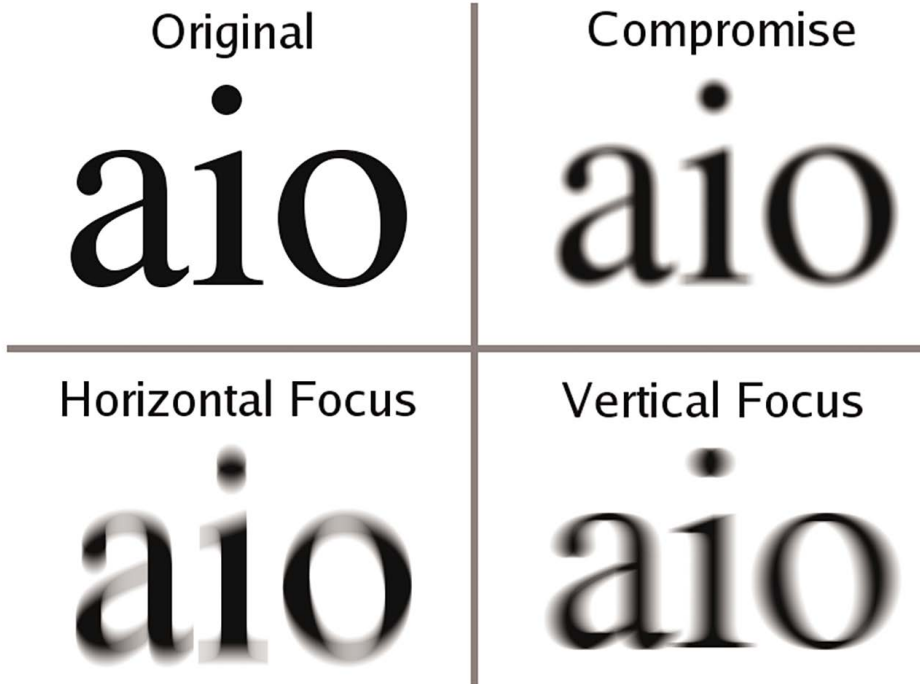


**With hyperopia (farsightedness), both sights are out of focus and the distant target is well in focus.**



**A case of astigmatism: Alek Wadi's vision is blurred or distorted to some degree at all distances. Both sights and the target appear blurred and ghostly.**





**Figure 1: An example of the blur from astigmatic lenses at different distances.**  
Photo courtesy of Tallfred, Wikipedia.

this one, you had better set an appointment with your optometrist.

### The causes

Astigmatism usually is caused by an irregularly shaped cornea (the transparent layer forming on the front of the eye). Instead of the cornea being perfectly spherical, it is shaped more like an ovoid, with one meridian (axis) being significantly more curved than the perpendicular meridian. It may also affect both of your eyes differently.

### The remedy

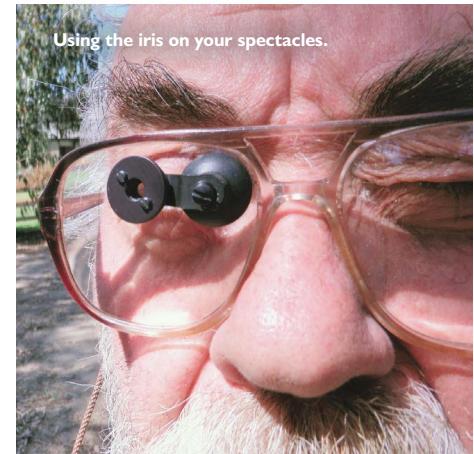
Besides being uncomfortable and confusing, the condition is nothing to worry about as it is a common vision defect in the whole population and can easily be corrected with specifically shaped lenses. An optometrist is fully qualified to run the appropriate test for myopia, hyperopia and astigmatism. It takes less than an hour and is totally painless.

During the test, the optometrist will ask you to look through a phoropter. The optometrist will place different lenses on the phoropter and ask you to read a distant eye chart. For each eye in turn, and with a set of two different lenses,

the optometrist will ask you: "Which one of the two lenses makes the letters on the chart look sharper: lens 1 or lens 2?" Be honest and tell them the one you prefer and continue the test. "Which of these two lenses makes the letters on the chart look clearer: lens 3 or lens 4?" And so on. Be patient! Slowly and meticulously, the optometrist will slowly refine their diagnostic with a better and better combination of lenses. Your proper answers to these questions help the optometrist in determining your lens prescription for astigmatism. And you will be surprised at the result and wonder why you did not consult earlier.

### Day-to-day spectacles or specific shooting glasses?

Now, you could go for a new pair of spectacles with correcting lenses that you use daily or when shooting. This is the easiest and the cheapest solution. The problem is that when using your day-to-day standard new spectacles, when aiming your head may be tilted sideways, forward or backward, hence your aiming eye will not be properly positioned to look in a straight line through the lens corrected for astigmatism and



your aiming vision may still be blurred.

The solution is to use proper shooting spectacles with a unique lens holder for your aiming eye. This lens holder is fully adjustable in all directions and angles to make the most of your corrective optics, no matter your head position either shooting handguns or rifles. Please note though that to be effective, your corrective lens for astigmatism must be properly positioned in



relation to your aiming eye. A slight rotation of the corrective lens in front of your aiming eye may render it totally useless. Try rotating this lens in front of your eye and see how the image you are perceiving is altered, distorted and becoming blurred. The optometrist should be able to assist in the 'alignment' of the device before you leave the office.

Shooting glasses are usually supplied with an opaque eye-cover for the other eye that you may want to keep open and a fully adjustable nose bridge to further adjust the up and down position of your lenses. You may also consider acquiring with your shooting glasses different colored filters and an adjustable iris-diaphragm.

There are many brands of shooting glasses available on the market, including Varga, Gehmann, Knobloch, Merkur, Champion and more. These adjustable light shooting glasses are not cheap, though I find the Varga possess the best ratio quality/price. You may also consider wearing cheaper implements like a head cap or headband that can accommodate your shooting

lens, but I personally find them a bit difficult to use and adjust.

After a few days waiting, my optometrist called me and delivered the lens manufactured according to his prescription. I rushed to the range, nervously unpacked my equipment, fitted the new lens on my Varga shooting glasses and took aim with my pistol (empty chamber, no magazine) and the result was quite astonishing. I felt I had a new aiming eye, one like my eyes from earlier days - I now could clearly and sharply see my rear and front-sights and the target too!

### Summary

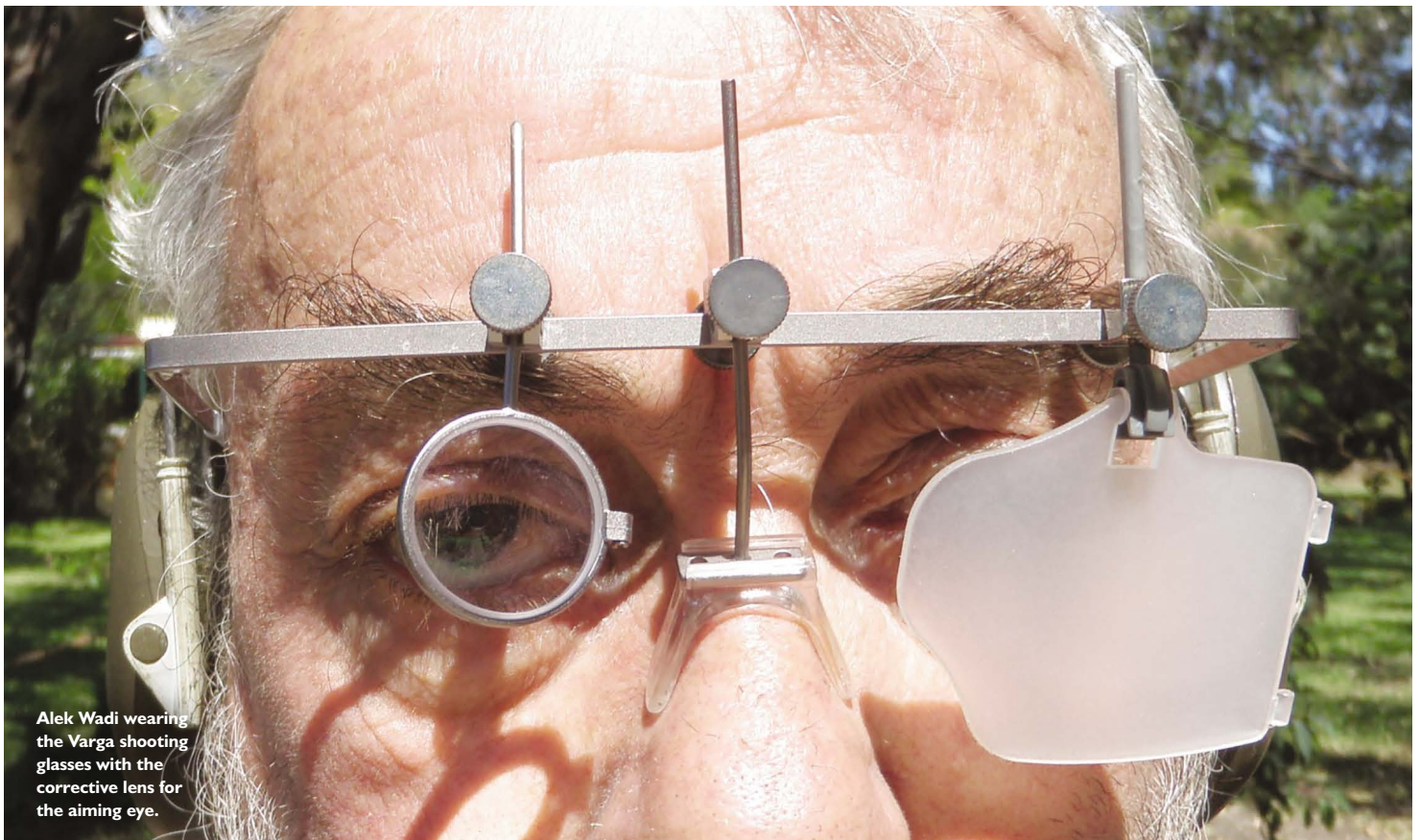
Vision defects are common. It affects 100 per cent of the human population before the age of 60 years, at different levels of course. Again, this is really nothing to worry about, as most of these defects can now easily be corrected either with spectacles, contact lenses or even with some minor surgery. However, it is essential that you have these defects identified and if you are still not too sure, consult your optometrist as the

results may be outstanding.

For me, an old shooter with my eyes playing up, my score immediately improved and my handicaps dropped significantly. Why have I waited so long to have this fixed? In retrospect, I can't explain why, especially as it was uncomplicated and painless. You may be using a \$2000-plus handgun and expensive ammunition, but if you cannot see your sights properly and possibly not even the target, it's a waste of ammunition and your scores will just keep becoming worse and worse. It's disappointing, frustrating and you may even consider giving up your hobby.

See a qualified optometrist and preferably one with an actual interest in the shooting sports. The results are worth the little money you would spend on your vision to enjoy and again make the best out of your quality shooting equipment. ■

*The author would like to thank Western Australian optometrist Ernie Hawes for his assistance and advice.*



Alek Wadi wearing the Varga shooting glasses with the corrective lens for the aiming eye.