Concentration and Diopter

Sighting is a process of concentration. The shooter acquires a visual picture by taking his bearings with the diopter and front sight, from which he draws very specific information. First, the entire sector is examined ("correct target?...wind?"), then narrowed down to the front sight tunnel. ("Canting, movement?"). In the last phase, only the ring and point exist, and the symmetry of the interval between them. A reasonably centered point is answered with the trigger reflex. The coordination of sighting and triggering functions so simply, more complex correlations could hardly be processed by our brain, since the concentrated vision alone requires almost the entire "data processing capacity". You make the job easier for your brain, if you provide it with an optimal sighting picture. For example through the logical use of tools. You make further improvements through automatization. Regular and intensive training simplifies and perfects the processes, because the brain assimilates the training structures just as muscles become stronger through physical exertion, the eye aims more accurately, when it regularly looks through the sight.

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Figure 3 (right): Elevation of the sighting line helps long necks but increase canting mistakes.

Figure 5: Moving the front sight around the bull's eye causes a permanent stimulation of the visual cells. This leads to rapid exhaustion and visual errors. The eye becomes effectively slower and recognizes defects later and with less accuracy. That's why early shots are usually better and slower usually worse than expected. An earlier release is self-usable, if your eyes are no longer reliable...

Figure 7: Regulating the diopter guides the cone of fire into the center of the target. There is nothing more irritating than firing a series of shots that just barely miss the bull on the same side. Instead of complaining about the "9.9", you should check the shot dispersion with the help of performance protocols and make "clicking" one of your passions.

Among the basic knowledge required for this is recognizing how many notches make up one ring on the target. The pamphlet that comes with your diopter will give you this information. Check the data by adjusting 50 notches and then 100 (high to the right, then low to the left) and by shooting five shots each on these coordinates. Afterward, measure the distance from the four focal points of the shot pattern to the center. This test will show you how many clicks are needed per ring. Furthermore, each pair of focal points should be the same distance from the target's center. If the diopter is functioning properly.

You should be aware of the fact that your diopter is slanted, when you cant your rifle. If your diopter needs two clicks per ring, then for a low, left 30.0, you will have to turn seven clicks high and four to the right to adjust a 10.9 (see above left example). By moderately canting towards the face, the same clicking leads vertically upwards, and you merely acquire a 10.5 (see above right). This may not look too bad, but according to the laws of probability, it quickly adds up to a loss of 2 to 3 rings per 60 competition shots. Rotating dioplers prevent this effect, if they are properly turned.

When to click and how many clicks is a matter of feeling and experience. Some turn after almost every shot, while others only turn reluctantly. Since wind, light, ammunition tolerance, changes of aiming position and other things continuously influence the point of impact, you should at least click during smallbore shooting, whenever the shot is not up to your expectations.

Visual Performance and Clicking

The graphic picture reflects the dimensions of the front sight and bull's eye back to the retina. With a normal front sight ring, six to ten visual cells lie between the ring and target and are illuminated with light. These estimated 600 to 1,000 receptors are responsible for passing the sighting picture on to the brain.

You receive a "correct" sighting picture, when the layer around the bull's eye is evenly thick. As soon as a cell layer is illuminated more in one direction and less in the opposite direction, you perceive a deviation. On the 50 m smallbore target, you can recognize differences of as little as 2 mm. Since the same 1,000 receptors are always strained, the danger of overshooting is great. Short sighting phases with occasional breaks for relief maintain the reactive capability of your visual cells.