Dear Colleagues

**A sling and management of recoil to group within the V-bull**

***The Problem*:** last weekend a TR shooter fired 15 shots at 500m to score 75.10. That is, all his shots were within or associated with the V-bull (1.0 MOA). There were no shots near the middle or the boundary of the bullseye ring. He had mastered the trigger-release technique, releasing each shot while the foresight remained absolutely still. That is, the rifle was really dead-still, without the foresight wandering and requiring the shooter to keep returning the aiming mark back to the centre of the foresight ring. This resulted in the shooter completely avoiding tremors due to rushes of adrenaline through his body.

Upon scoring 75.10 the shooter had reached an important stage of his shooting career. Yet, in his second shoot he scored 50.4, producing a high-left to low-right 2 MOA group across the bullseye.

The writer investigated the shooter’s techniques which led to these scores. It was surprising in his second shoot that he had experienced a technique difficulty, which scattered shots across the bullseye. Although the shooter relied upon many techniques, he had yet to understand the effect upon a group when the forward hand interferes with recoil.

***Discussion*:**the shooter and writer agreed to consider the following techniques which could affect his grouping ability:

* setting up the shooter’s exact body position on the firing point
* correction of changes of natural point of aim due to minute muscular movements
* firm contact of the butt against the shooter’s shoulder
* a hand-stop mounted on the stock in front of the forward supporting hand
* a sling with the Bisley twist to stabilise the position of the forward hand on the stock.

***Observations*:** *Body position*:  the right-handed shooter established his body position, with an imaginary dotted line between the eye and target. The first step was to place the elbow of the forward arm well out in front, under the dotted line. With no movement of the forward elbow, the butt was raised to the shoulder, enabling the RH shooter to look through the sight and see that the rifle pointed far to the left and above the line of targets. The left foot was then moved a cm or so to the left, to aim the foresight at a position above the target. The navel was then moved forward a cm or so, until the foresight pointed directly at the target. The shooter then moved his head and shoulders so as to balance this weight upon the forward elbow.

*Small muscular movements and their correction during a shoot*:  as each shot was fired, the shooter managed to keep his feet, forward elbow and pelvic girdle from making any visible movements. It was noticed that upon aiming, the shooter redirected the aim of the rifle with a small positioning movement of the left or right foot. The lower legs moved in response to nervous reactions, but without repositioning either foot. If the forward elbow was thought to have moved a little, then the navel could be used to adjust the foresight up or down.

*Contact of butt against the shoulder*:  the shooter was interested to examine the firmness of contact of the butt against his shoulder. It appeared to him that the butt was too easily taken from the shoulder, with the possibility of locating it incorrectly when setting up the aim. The butt felt loose, which led the shooter to extend it initially by 6mm.

The shooter was also concerned about a possible disadvantage when the butt felt loose, compared with the tight fit of another shooter. The other shooter balanced his forward body weight upon both elbows instead of the forward elbow alone. When reloading, both elbows shared the weight of the rifle and supporting arm. By comparison, his own right elbow was under no tension and could be repositioned after reloading to wherever it felt comfortable. Whereas, the other skilled shooter on the firing point relied upon both elbows being positioned firmly. It seemed that the other shooter was at a greater risk of recoil dislodging the position of the forward elbow by a few mm. In fact, there was no reason for concern about either position, provided each shooter observed the natural point of aim for every shot and readjusted any suspected change.

When positioning the butt very firmly in the shoulder, the thumb of the right hand could be used in the manner of a shoe-horn. Neither of the two shooters appeared to be at a disadvantage, using a less-tight and a tightly-fitting butt. However, the shooter with the tightly-fitting butt, found that recoil and reloading involved considerable movement of the barrel during recoil. This amount of movement could be seen to result from the body resting on both elbows. When resting mainly on one elbow, there was very little movement of the rifle, both during recoil and reloading. Most importantly, there appeared to be far less risk of dislodging the forward elbow and changing the natural point of aim.

*A hand-stop mounted on the stock in front of the forward supporting hand*:   in the first shoot (score 75.10), the forward hand was close to but did not appear to be hard against the hand-stop. In the second shoot (score 50.4), the forward hand was clearly against the hand-stop. The shooter was adamant that he always attempted to use a forward tension against the hand-stop, which he thought was equal to the tension of the butt against the shoulder. The technique was however claimed by many shooters to risk a change in the balance of tensions during recoil. This appeared to result in a slightly greater tension at the front hand. The imbalance had been found to lead to a high-left to low-right diagonal group, far larger than the V-bull. Some leading shooters have confirmed the validity of the equal tension technique, which they use when dismantling and reassembling the body position after reloading.

*The sling with a Bisley twist to stabilise the position of the forward hand on the stock*:  for the past century, a sling with the Bisley twist has been used by many shooters to achieve a fixed and unmoving position of the hand along the stock. The technique for renewing this constant tension between the recoil of shots, requires the shooter with the butt lowered to the ground, to use the right hand to return the sling position to the same place around the forearm, i.e. above the cuff of the shooter’s coat. The sling prevents the hand from moving forward and completely supersedes the need for a hand-stop.

***Conclusion*:**   the shooter was clearly using a sound body position, balancing upon the single forward elbow (and a less-firmly positioned right elbow), which achieved a V-bull group in the first shoot. However, establishing an immovable hand position along the stock, based upon a hand-stop, had a serious disadvantage compared with the well-known technique of a sling with the Bisley twist. The practice of establishing the same tension of the forward hand, by placing it against a hand-stop, equal to the tension of the butt against the shoulder, was unreliable for this shooter. Other shooters who have claimed success with this approach in fullbore shooting, appear to vary in their ability to shoot a 1 MOA or V-bull group.

It is suggested that the shooter should set up his sling with a Bisley twist. It has been used successfully for the past century, by thousands of shooters, to achieve a 1 MOA group from 300m to 900m.

Best regards

Geoff