Dear Colleague

**The priority technique, avoiding tremors yet releasing each shot within 3 seconds**

**The Problem:**every shooter needs to release as many shots as possible while the flags show that wind velocity and direction remain unchanged. However, this leads to a technique difficulty because quick trigger release generates tremors. The shooter needs to learn how to continue shooting a small central group, without it widening and surrounding the 6-ring (F Class) or the perimeter of the bullseye (TR).

A tremor is almost guaranteed to be generated upon a shooter speeding up the release of a shot. This initiates a message from the nervous system that a rush of adrenaline is imminent. The tremor can be seen when discharging a dry shot, because it is accompanied by a minute movement of the head, shoulder and trigger hand, together with movement of the muzzle. A shooter is often alarmed when this occurs during a misfire. As a result, a projectile can go anywhere except into the X-ring (F Class, 0.5 MOA) or the V-bull (TR, 1.0 MOA).

When team-shooting, a coach will quietly sayGo, for which there is an unwritten rule that the shooter should release the shot within 3 seconds. Attempting to release a shot this fast will certainly produce a wide group because of the tremor that occurs.

The aim of this article is to describe how a shooter can release each shot within 3 seconds, without generating a tremor. This is the final technique that distinguishes shooters who have won the Queen’s Prize on many occasions. Since the 1970s, less than one percent of TR shooters have mastered this particular trigger-release technique. Upon reaching this stage of development, the TR and F Class shooters must be on the lookout for technique breakdowns that sneak up on them, e.g. change of the natural point of aim due to the nervous system causing movements of muscle groups, tightening of arm muscles (TR), changes in tension of the hand on the pistol grip and tricky wind. Perhaps the most difficult is the sighter shoot, where each shot needs to be released with a new wind reading, like a first sighter.

**Discussion:**there are techniques for the release of a shot without generating a tremor. This keeps all shots within a small central group described above. Such techniques were mastered by leading shooters before 1900. These shooters routinely practised them and as a result, often finished at the top of several hundred competitors at a King’s or Queen’s prize meeting. In more recent times some renowned shooters have been recognised for their ability to frequently shoot a 50.10 (TR) or a 60.10 (F Class).

The techniques for grouping as closely as this, i.e. keeping shots within 1.0 MOA (the TR V-bull) or 0.5 MOA (the F Class X-ring), are to:

* ascertain the degree of care required to discharge a dry shot with no perceptible movement of the foresight or telescopic sight element, then to fire live rounds using such care
* use a highly-practised trigger-pull, where just before the moment of shot release, the pull is changed to a much slower movement which will not generate a tremor.

Variations have been adopted for these techniques. One method is to monitor the size of a group, ensuring that it remains as small as the V-bull (TR) or X-ring (F Class). As soon as a shot appears which belongs to a wider group than this, typically as large as 2.0 MOA (TR) or 1.0 MOA (F Class), the shooter needs to suddenly slow the trigger-pull to within the degree of care needed to avoid generating a tremor. In team shooting, a coach and shooter who have worked together and are fully prepared for this eventuality, begin to pull the trigger slower, keeping the size of the group within the size of the V-bull or X-ring.

However, the vast majority of shooters only ensure that when a shot is about to be discharged, the rate of trigger pull is kept within a remembered rate of pull. When it is necessary to increase the speed of shooting, to maximise the number of shots during an unchanging period of wind velocity, many of these shooters accept that faster shooting incurs a wider group. That is, they settle for a group approximately the size of the bullseye (TR) or the 6-ring (F Class) or even larger.

**Practical:**the writer and other shooters have for several decades preferred to enhance the second of these techniques by:

* improving the technique for ensuring the rifle remains dead still, to such a degree that there is no perceptible movement of the foresight (TR)
* changing the rate of pull of a single-stage trigger, so that just prior to shot release, the rate of pull is slowed significantly, preventing a tremor from being generated (TR and F Class).

In this approach, the TR shooter adopts an improved prone body position, where the weight of the arm and rifle are supported solely by the foremost elbow. It must be positioned directly under the rifle, to take the total weight of the rifle and arm. The right leg of a RH shooter is positioned parallel to the rifle barrel. The forward arm is placed well out in front of the shooter’s head, so that the elbow forms a single fulcrum on an imaginary line between the shooter’s eye and the target. The left foot and navel are checked by confirming the natural point of aim prior to every shot, to avoid any risk of the nervous system unknowingly causing a change to the natural point of aim. Upon raising the rifle to aim, with sling tension tested before the shoot, to ensure it will just take the full weight, the shooter then consciously relaxes every muscle of this supporting arm. The total weight of arm and rifle are in this way, supported entirely by the bones and sling, with no contribution by any arm muscle. In this configuration, the rifle is able to be held with no perceptible movement of the foresight.

The shooter may use a rifle fitted with a two-stage or single-stage trigger, either of which will enable the trigger to be initially pulled quickly, then very slowly. That is, upon approaching the point of release, the rate of pull is slowed considerably, to a rate where an extra time of only 2 to 3 seconds is added to the overall time of shot release. In this latter period, the shooter concentrates the mind upon the very slow rate, right up to and hopefully, including the moment of release. Concentrating the mind for this entire period constitutes thefollow-through technique.

Using the slowed-pull component of trigger-release, F Class shooters are able to keep the group to within 0.5 MOA. If the rate of pull is increased, then the group will increase to 1.0 MOA or as much as 2.0, i.e. the width of the bullseye.

Rule changes by the NRAA, which allow a lighter trigger weight, can handicap F Class shooters. If the trigger weight is very light, the shooter may find it difficult to reduce the rate of pull during the second stage. It should be noted that the widely-held belief that reducing the weight of a trigger will favour a smaller group,has no physiological basis. Any advantage arises from the smoothness of the sear-face, which controls the release of the trigger at the required moment.

**Conclusion:**exactness of body position, a single-elbow fulcrum and conscious relaxation of arm muscles, can enable a shooter to hold the rifle dead still, i.e. without a trace of perceptible movement. Upon waiting for a marked target to be raised, the foresight can be positioned so that the target rises up exactly into the foresight ring, ready for shot release. At this time the shooter starts the second trigger pull, so that when the coach saysGo, there will be a further 2 or 3 seconds of very slow pull until the shot departs. This sequence has been used by some in Australian Rifle Team matches, enabling easy compliance with the unwritten 3-second time limit for a shot. Onlookers remain confused, because they cannot distinguish the time for the final slow-pull stage, while the coach is invariably happy with the 1.0 MOA group scored in a TR teams match.

Best regards

Geoff