Dear Colleagues

**Clubs need to re-teach trigger-release to overcome tremor shots**

**The Problem:**this article describes the tremor effecting the shooter’s body, averted from the outset using the trigger-release technique. Since the beginning of rifle shooting this effect has done the greatest harm to shooters. It is recognizable today, as a very small central group commonly surrounded by wider shots and inevitably, low scores. It was known in 1859, when Queen Victoria issued her challenge to the nation to become proficient in rifle shooting, rather than having to maintain a much larger standing army. From the very beginning, rifle shooters belonged to clubs where they were taught and practised the necessary techniques, including trigger-release. No one thought that the tremor effect would still be affecting the vast majority of shooters 160 years later!

The trigger-release technique is an absolute necessity, yet hard to perform correctly. When having it explained or reading about it, a new shooter cannot easily understand how gently to pull the trigger or how fast. This is what the degree of care at shot release is all about.

At every Queen’s Prize meeting, there have always been a small number of shooters who were taught this technique by an experienced coach. They practised it and soon found they had a considerable advantage over most competitors.

**Discussion:**during the 19thcentury eminent scientists, physicians and engineers were attracted to rifle shooting. James Clerk Maxwell, who first described communications utilizing electromagnetic waves, set out the mathematics for shooters to understand the trajectories of projectiles back to 1000 yards. In the 1890s, a physician Dr Arthur Conan Doyle, resided at Undershaw near Haslemere in West Sussex and became a founding member of the Undershaw Rifle Club. Rudyard Kipling’s family lived at Rottingdean near Brighton in East Sussex, where he strongly supported Rottingdean Rifle Club. Among the many techniques taught by these clubs was the release of a shot without being affected by a small tremor of the body. The tremor was recognised by physicians as arising from a body-wide message when a shot was about to occur:a rush of adrenaline is imminent.This tremor is far smaller than the common flinch experienced by new shooters who anticipate the discharge of a shot.

In January, 2019, the writer examined groups recorded in the Hexa database (used by clubs in Sydney, Perth and Brisbane) and photographs from the Kongsberg system (from Darwin). The groups produced by 94 of 100 shooters, over the usual ranges each weekend, were found to be wide and with less than wonderful scores. This was because these shooters appeared unable to avoid the tremor that occurred at the moment when each shot was released. In discussion, many shooters admitted they had no idea that such a tremor existed. Neither had they been taught that the scorer standing behind when a dry shot was fired, could see the few mm movement of the tremor. It moved the shooter’s head, shoulder and hand on the pistol grip. Likewise, shooters did not know they could see this for themselves, simply by watching a dry shot to see if there was any movement of the foresight at the moment of discharge. Of far greater concern, few were aware that it was possible to release each shot without the muzzle moving at the moment when a projectile departed.

It became clear that the techniques taught to shooters since 1859 are still largely unknown to shooters in 2019. Yet, a small number of shooters who were taught the trigger-release technique, use it today to produce groups smaller than the 1 minute of angle (MOA) V-bull (TR) and the 0.5 MOA X-ring (F Class). Whereas, most shooters produce a TR group with several shots in the V-bull and a further pattern across the bullseye and inner rings. Similarly, many F Class shooters put several shots in the X-ring, although with a wider group across the 6-ring and bullseye.

A small number of shooters in Darwin and Sydney, were encouraged to shoot with a technique that would enable them to completely avoid a tremor. This included several F Class shooters who had no difficulty putting 8 shots or more in the X-ring. As well, several TR shooters found they were not only able to group within the V-bull, but could even group 8 or more shots in the X-ring. These trial shoots supported the tentative conclusion that it is possible to use the earlier trigger-release technique and avoid the tremor effect altogether.

A physician is able to advise shooters that the nervous system can be tricked into not releasing a tremor. For example, the common flinch when a new shooter anticipates a shot is about to be discharged, can be tricked into not occurring. All the shooter has to do is alternately fire a dummy round and a live round. After perhaps 4 or 6 live shots fired in this way, the shooter will usually cease experiencing a flinch. In the same way, a shooter who discharges a dry shot, will observe the foresight or scope element move slightly when the shot is discharged. Upon releasing the dry shot again and again, with a greater degree of care during trigger-release, the tremor movement will be seen at first. However, with a further degree of care, the shooter will observe no movement of the sight relative to the aiming mark. This happens because the shooter has tricked the nervous system into accepting that no release of adrenaline is about to occur. That is, the shooter has disrupted the nervous system message.

**Practical:** there are two ways to disrupt the bodily need for adrenaline. It can occur when the shooter:

* loads with dry rounds, then applies an increasing amount of care when discharging the action, until a degree of care is found where there is no trace of movement of the foresight or scope element. Upon loading and shooting live rounds with this same amount of care, the shooter will find it is possible to shoot 10 shots without a tremor being generated. These shots will then group within the V-bull (TR) or X-ring (F Class), until the shooter’s memory of the required degree of care begins to fail
* mentally divides the trigger pull into first and second stages, then quickly pulls the trigger across the first stage. Upon reaching the second stage, the rate of pull is slowed greatly and controlled, with the mind focussed upon the rifle being held dead still and at the same time, thinking how far the trigger has progressed toward the point of discharge, which occurs as a sudden surprise.

Each time a shot is discharged in this way it occurs within the desired group size. The difficulty of focusing the memory and maintaining the necessary degree of care, leads to shots not going into the group. Instead, it may go into one of a number of wider groups outside the central group. The outer group is larger than the 6-ring (F Class) or the bullseye (TR). A characteristic is for the outer group of shots to all appear close to the perimeter of the bullseye (TR) or 6-ring (F Class). Depending upon the stability of the body position of the shooter (TR) or lack of unwanted hand tensions on the pistol grip (F Class), the outer group may also occur as a straight line of shots, tangential to the V-bull or bullseye rings. Very often the outer line of shots will appear as one or two large sub-groups centred well out, upon the bullseye ring or inner ring, with unaffected shots still going into the desired central group.

The writer was taught these techniques in the early 1950s, preferring the second of the above options. When a shot appeared to be close to the bullseye-inner line (TR), this indicated a need to apply more care or slower pull when close to the point of discharge. For this to occur, the rifle must be dead still, aided by the aiming mark automatically centred by the brain in the foresight ring.

**Conclusion:**the writer and other shooters, who learned to avoid tremor shots and did this for the rest of their lives, can verify that every shooter needs to be assisted in this way. He/she will as a result convert to V-bulls or Xs, all shots which otherwise appear around the perimeter of the bullseye or 6-ring.

**Suggested action:**an invitation was sent to a number of shooters, who are likely to be immediately able to shoot without tremors occurring. They would hopefully all discuss ways to encourage shooters in their clubs to follow this path. It is suggested that each club should appoint recorders of shooters’ groups. I am offering to assist the 2 or 3group recordersin every club, to diagnose when a group shows signs of tremor shots. They occur in different ways and I would be pleased to confirm which are really the tremor shots of a shoot.

You have my email address. When sending a shooter’s name to me, I can find his/her group direct from the Hexa database. If from Darwin, I can check from the photos I receive each week. Many clubs are using other Australian and Canadian electronic marking systems, so please see if you can download a group and send it to me for confirmation. Very often other technique difficulties appear, for which I will also be able to suggest corrections.

Through this, we will soon have all fullbore rifle shooters producing the small groups that are nothing new to smallbore shooters. When you find this happening, be ready because you can expect to win the Queen’s Prize! This is not a joke, because you will no longer have shooters ahead of you because of this advantage.

Articles from now on will focus upon the groups that occur as a result of tremors and other technique difficulties.

Best regards

Geoff