

# The Real Role of Small Arms in Combat

by *Dr Jim Storr*

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Consider an infantry company fighting somewhere in the world. The company attacks an enemy platoon position. Typically, a few enemy are killed or wounded; the rest surrender or withdraw. The company has fired several thousand rounds, of which a dozen or so have hit the enemy. That is not very efficient.

Something else is happening, but that 'something else' is not well understood. As a result, it is not done well. That 'something else' is suppression. This article looks at what suppression is; why it is important; and how to do it much, much better.

## Defence and Attack

Since the Boer War, if not before, infantrymen have been unable to advance in the open against tolerably well-organised defences equipped with rifles. The attackers' casualties are simply too great. The minimum requirement for a successful defence is quite modest: high-velocity, conoidal bullets fired from half-decent breech-loading rifles. Anything more, such as automatic weapons, simply makes the attackers' job even harder. In the early part of the 20th Century different armies came up with different ways of overcoming that problem. Many involved artillery or tanks. Some involved infantry heavy weapons, such as mortars. Most included a form of organisation and tactics by which the attacker used small arms fire to suppress the enemy. That enabled the attackers to move forward to the point where they could use bayonets, grenades and very-short-range small arms fire (at ranges of perhaps a few feet) to incapacitate any defenders who continued to resist. Critically, however, there was never much rational, explicit analysis as to how that took place.

A few studies are quite insightful. It appears that a soldier's ability to hit a given target is typically reduced by a factor of ten or so when he is moved from a static rifle range to a field firing area where he has to select cover, move, shoot and so on. It is reduced by a further factor of ten or so if there is an enemy firing back at him. It is reduced by another factor of ten if the enemy has machine guns, or if he has tanks; and by a hundred if he has both.<sup>1</sup> We begin to see why many thousands

of rounds can be fired, but very few actually hit.

Another study reveals entirely different phenomena. It highlights that achieving surprise, or inflicting shock on the enemy are hugely effective. These are more effective than any likely force ratio, or the use of other weapon systems, and so on.<sup>2</sup> Put very simply, if the attacker can find the enemy's flanks and rear and attack him from there, or apply sudden concentrated violence to him and then exploit it, the enemy will typically give up quite quickly. He will then either withdraw, if he can, or surrender. A number of issues interact here. One is that using covert routes to find the enemy's flanks and rear is clearly a good thing. Another is that the use of tanks or indirect fire to stun the enemy is very helpful. But within all of those tactics there is another critical factor: the attacking infantry's ability to suppress the defender. That enables the attacker to move forward: either to close quarters to use bayonets and grenades, or around and past the defender's positions to attack him from unexpected directions.

Although relatively few of the enemy are typically incapacitated by small arms fire, their location and identity is



Figure 1: One of SDE's Live Fire Intelligent Targets [SDE Ltd]

often critical. For example, the clearance of one trench may allow the attacker to get behind several more, and start to roll up the position.

Suppression is the effect of small arms and other weapons systems which temporarily prevent the enemy firing its weapons or moving in the open. In simple terms, it makes them keep their heads down. It is critically important. In the offence it allows the attacker to move forward, to find gaps and weak points, and exploit them. In the defence it prevents the enemy moving forward and firing, and thereby sets him up for counterattacks. In both cases it pins the enemy down for incapacitation (or destruction) by other weapons.

**The Weapon and its Firer**

It is important to understand that, for the last century or so, most modern small arms have been more accurate than their firers. A typical rifle – be it bolt-action or semi-automatic – will form a group of perhaps 40mm or better at 100m, if fired from a vice or clamp. A reasonably well-trained soldier firing the same weapon on a range can group at perhaps 100mm at the same distance. Very few armies train their soldiers to consistently beat that sort of accuracy. This has a huge consequence, which very few armies acknowledge: the weapon is in many ways irrelevant. As most modern small arms are more accurate than their firer, it makes very little difference which weapon is selected. There are many other parameters. Reliability, weight and ergonomics are all important. But accuracy is almost irrelevant, because many weapons are ‘good enough’ in that regard.

What is far more important is to train the soldier to get the required effect from his small arms. In most armies he is trained to hit targets out to 300m or perhaps 600m. Yet in battle he rarely does that. He is rarely, if ever, trained to do what he really needs to do: suppress the enemy. Field research carried out in the Second World War provided a useful metric for small arms suppression,<sup>3</sup> as did some more recent analysis.<sup>4</sup> We can consider three cases: the need to suppress an enemy; the need to keep him suppressed; and the need to re-establish suppression once lost. In general, small arms fire has to pass within roughly a metre from the outline of the target to be effective. A small number of rounds passing through that area in a few seconds (perhaps 3 to 5 rounds in as many seconds) will suppress the target, or re-suppress him if required; whilst just one round every three seconds will keep him suppressed. That seems quite achievable.

**Target Data**

Until recently, however, it was not possible to know whether the fire of a group of infantrymen was actually doing that. On the firing range it was possible, at best, to have targets fall when hit, and then put them back up. Near misses, which would probably suppress him, could not be taken into account. However, the UK-based firm System Design and Evaluation (SDE) Ltd has developed a simple, practical,

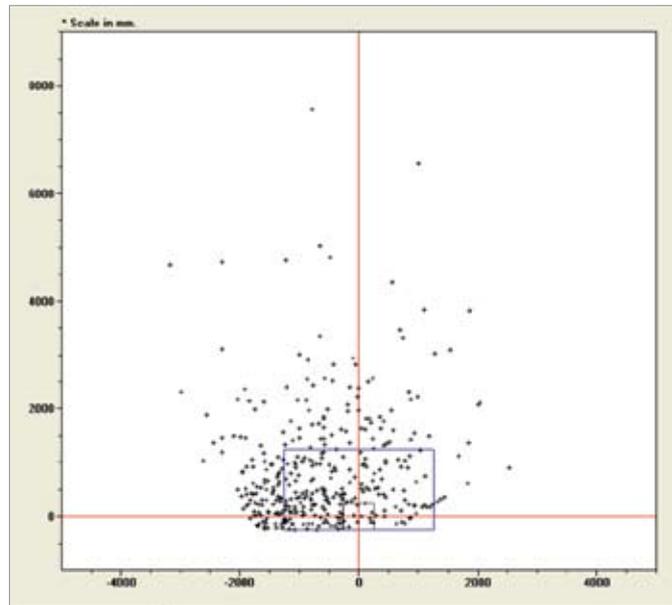


Figure 2: Typical screen shot showing rounds missing by up to five or six metres [SDE Ltd]

computer-controlled acoustic target system (Figure 1) which tracks every bullet fired within an area of several metres around a target.<sup>5</sup> It can assess which rounds pass within a given area and, if required, can direct a small arms target to respond appropriately. So, for example, it can be programmed to drop the target if 3 to 5 rounds pass within a metre of the target within 3 to 5 seconds. It can be programmed to keep the target down if any rounds pass within a metre in any subsequent 3-second period; and, if not, to re-erect the target. It also detects hits on the target itself, and it collects and displays all target data in real time.

Trials with British infantry soldiers, using SDE’s equipment, show that most rounds fired in a typical, realistic scenario are simply not accurate enough to suppress, using the above parameters. It is not uncommon for rounds fired at an exposed target to miss by five or six metres (Figure 2). Great amounts of ammunition are expended on such trials, typically achieving very few hits and very limited suppression.

**Training for Effective Suppression**

However, SDE’s equipment has been found to be extremely useful in training soldiers to suppress effectively. In fact, the first group to use the equipment was effectively self-taught. After seeing the result on the computer screen, the section commander controlled his section’s fire better; and conserved its ammunition by having soldiers fire in turn or when ordered. Figure 3 shows that section’s results. The reason for the more effective performance at 500m, compared with that at 300m, is because the commander saw the results at 300m and corrected some simple errors before the section fired at 500m.

A further and highly significant finding was that, without the benefit of seeing its results, a section would typically only

suppress a target for a few minutes before running out of ammunition. With a little feedback and coaching, the same section then suppressed a similar target *for over twenty times longer* with the same amount of ammunition. The relatively simple issues of locating the enemy and controlling the section's fire are hugely important.

### Machine Guns in Suppression

Perhaps the most damning findings, however, relate to differences between weapons. The British L86 magazine-fed SA 80 Light Support Weapon (LSW), with its bipod, is extremely good at suppressing targets out to 500m or more and, in conjunction with L85 rifles, keeping them suppressed. That is principally because it is accurate enough for almost every shot fired to contribute to suppression.

The L110 (Minimi) Light Machine Gun (LMG) performs far worse in such trials. At best, only the first shot of a short burst passes close enough to suppress. However, subsequent shots in that burst go anything up to 6m wide of the mark at battlefield ranges. Since perhaps 3 to 5 rounds in 3 to 5 seconds are required to suppress, a typical LMG gunner will rarely achieve suppression. He would have to fire 3 to 5 bursts in as many seconds to do so. Furthermore, since only the first round typically passes near enough, he would have to fire a burst every 3 seconds or so to keep the target suppressed. That takes much more ammunition than a mixture of SA80 Rifle and LSW alone.

### The Purpose of Suppression

Finally, we come to what is the biggest source of waste of small arms rounds in combat: the purpose. Far too often we see hundreds or thousands of rounds fired with some vague intention of suppressing the enemy. Yet, even if that is well done, we often fail to detect *why* it is being done. That should be to fix the enemy: to enable manoeuvre, or for attack with other weapons. Far too often it seems to be done just because the infantry 'can do so':

**'Get some fire down!'** is the wrong approach.

**'Suppress the enemy!'** is a better approach.

**'Suppress the enemy, to enable the platoon to attack him from his rear'** is a better approach still.

Suppressive fire without purpose is just that: purposeless.

### Conclusion

To conclude, small arms fire kills and incapacitates very few people in a typical infantry battle. The location and identity of those individuals is critical to the outcome. However, the effect of small arms fire in suppressing the enemy is probably more important. Suppression fixes the enemy to enable movement, or for elimination by other weapons. Suppression is critically important, but also generally very poorly done.

New training systems can help infantrymen suppress far more effectively: more precisely; for longer; using less ammunition; or a combination of those things. Regrettably, some weapons (such as the relatively newly acquired LMG) seem to be very poor at suppressing; and far worse than the weapons that they were procured to augment. That is possibly because the procurement system had no way of measuring suppression under field conditions.

Infantry small arms should clearly be lethal. Most have been, for at least 100 years. They should be more accurate than their firers. Most have been, for at least 100 years. Beyond that, they should be procured partly on the basis of issues such as reliability, weight and ergonomics.

More importantly, however, they should be procured on the basis of the effect they create. That is a combination of killing individuals (which happens only rarely) and suppressing targets. Suppression is a critical element of infantry combat, largely because of what it enables. ■

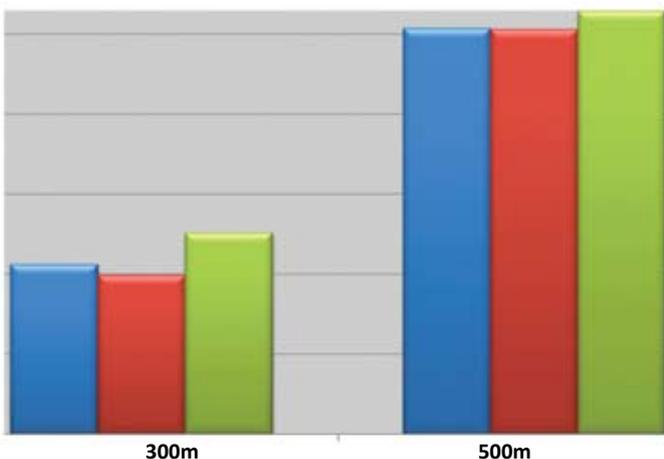


Figure 3: Duration of Suppression [SDE Ltd]. One 4-man team is shown in blue, the other in red, and the section overall in green

### NOTES

- 1 D. Rowland, The Effect of Combat Degradation on the Urban Battlefield. *Journal of the Operational Research Society*, Volume 42 No 7, 1991
- 2 *The Effects of Shock and Surprise on the Land Battle*, Defence Operational Analysis Establishment Memorandum R9301, August 1993
- 3 [British] Army Operations Research Group Memorandum 123, 7 May 1944
- 4 Dr D. J. J. Jaya-Ratnam, Close Combat Suppression: Need, Assessment and Use, *Proceedings of the 34<sup>th</sup> Annual Gun & Ammo Symposium*, 26–29 April 1999, Monterey, California
- 5 I am most grateful to Graham Evenden and Keith Cook of SDE Ltd for their encouragement and assistance in preparing this article