

detonation where and when desired. In this regard, designs for contact fuses, delayed fuses, proximity fuses, and timed fuses have all improved over the years. New advances in digital and micro-chip technology will possibly further enhance the effects of explosive ammunition. Anti-armour or material ammunition designs have also witnessed improvements in the areas of propellant, warhead explosives and penetration capabilities. With regard to improved penetration, both chemical energy (shaped charges) or kinetic energy (for example, depleted uranium) systems are used.

While not a primary focus for this study, it is worthwhile noting that anti-armour weapons (such as rocket propelled grenades or RPGs) have been in existence since WW II and have gone through several generations of subsequent improvement. Although only in operational existence since the mid 1960s, similar generational improvements for short range shoulder fired anti-aircraft missiles have also taken place. Both weapons types have been a source of concern within the SALW arms control fora. As new types replace older models, the older ones become surplus and may be sold or given away, sometimes in an uncontrolled manner. Such transactions are of concern where these weapons end up in the hands of unrestrained and irresponsible non-state and/or state actors.

Other SALW Concerns

Non-lethal weapons,²⁵ while not a new development, have generally been the purview of internal security and police forces. However, they have recently attracted more interest in military circles. It is this interest that warrants their inclusion in any study on future weapons development. Non-lethal weapons have been around for centuries. Clubs and batons are considered non-lethal weapons in many circles. Many common non-lethal weapons are used by police forces and internal security forces for riot and hostile crowd control and for subduing criminal suspects when deadly force is not considered appropriate. For various reasons they have seldom been used in the context of the battlefield, except for the purpose of area denial or restriction (for example, barbed wire).

There are numerous non-lethal weapons currently in wide use. Some are advertised for self protection but like any protective weapon they can be used in an offensive manner as well. The most common is the police riot squad baton and shield. The shield serves as a protective device while the baton is used to deter and subdue. A number of sprays or riot agents are available for breaking up threatening crowds or forcing individuals out of confined spaces. CN (or tear gas) and CS (another irritant gas) are commonly used in this manner. Normally, the agents are contained in a cannister grenade which can be thrown or fired from a launcher. The water canon (essentially a high pressure fire hose) is frequently used in Europe as a non-lethal

²⁵ The term "less lethal" is a more appropriate nomenclature. The impact of a 7.62 mm round in the limbs or even the torso may be non-lethal while a concentrated amount of tear gas in an enclosed space or a hit by a rubber bullet in a vital area may be lethal. Nevertheless, as "non-lethal" seems to be the operative description for these weapons, that designation will be used in this study.